August 4, 2003

Robert C. Hight, Director
The Resources Agency
Department of Fish and Game
1416 9th Street 12th Floor
Sacramento, CA 95814

Dear Mr. Hight:

I have the pleasure of forwarding to you the enclosed recommendations for the recovery of coho salmon in California from the Statewide Recovery Team for Coho Salmon.

The Statewide Recovery Team is composed of stakeholders representing federal, state, local and tribal governments, a coalition of petitioners for listing of coho salmon pursuant to the California Endangered Species Act and other non-governmental organizations, landowners, and scientists. The RT has worked closely with Departmental professional staff, benefiting from the Department's extensive knowledge, scientific expertise, and work products. The RT has added value to the Department's work by supplementing information on individual watershed and fishery conditions, identifying problems for coho that need to be addressed, and proposing realistic solutions to the problems.

The report from the RT contains nearly 400 recommendations adopted with the support of every member of the RT. There are also 63 recommendations presented for your consideration that achieved a majority vote, but not consensus. The votes are recorded for your information on each of these non consensus recommendations. Some of these non-consensus recommendations contain alternate language for your consideration. The RT will appreciate your consideration of each of these recommendations or alternates before deciding which to incorporate into the Department's Recovery Strategy.

Notwithstanding the many hours of work put into developing recommendations to recover coho salmon, the RT was not able to finish its task in the time available. The RT respectively requests that you urge the Fish and Game Commission to grant the additional time available under the statute to allow the RT to finish its work.

There are a number of topics that the RT has been unable to address at all and several that are partially complete; a significant number of recommendations are in draft form and pending. Among the topics that particularly require additional attention are:

- Hatcheries
- Genetics
- Ocean Conditions
- Monitoring

- Recruitment of Large Woody Debris
- Stream Complexity
- Habitat Fragmentation
- Estuaries
- Water Temperature and
- Sediment Source Reduction

Some of these topics are being addressed by working groups, whose work has not yet been brought before the RT. For example, several topics are being addressed in a timber issues working group, which has not yet reported out proposed recommendations but which expects to do so in September, 2003. The categories of recommendations included in the report do not indicate any prioritization or higher level of importance in comparison to unfinished or unmentioned categories.

The RT would like to complete its consideration of all of the recommendations for coho recovery. We would like to have the opportunity to coordinate our recommendations with cost information developed by the Department's consulting economist, whose work has not yet begun. The RT did not have time to calibrate the watershed-specific recommendations with its adopted watershed priorities. DFG has not yet provided for RT review its definitions of key terms, some of which will greatly affect the scope of recommendations. The RT also did not have an opportunity to take a step back to make sure that the sum of recommendations is fully adequate to recover the species and the criteria to recover the species will benefit from further review. The RT did not consider whether its recommendations meet the requirements of the Fish and Game Code. And finally, the RT would like to assure appropriate consistency between its statewide recommendations and its watershed-specific recommendations, including the Shasta and Scott HAs.

The RT has appreciated the opportunity to work on the plan to recover coho salmon and looks forward to completing its work in the coming months.

Yours truly,

Sandra M. Rennie
Facilitator

REPORT TO THE DIRECTOR

CALIFORNIA DEPARTMENT OF FISH AND GAME

FROM

THE COHO SALMON STATEWIDE RECOVERY TEAM

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THE COHO SALMON STATEWIDE RECOVERY TEAM

INTRODUCTION

Background of the Recovery Planning Process

In August, 2002 the California Fish and Game Commission (Commission) issued a finding that coho salmon warranted listing as a threatened species in the Southern Oregon/Northern California Coast ESU range and as an endangered species in the Central California Coast ESU range. The Commission directed the Department of Fish and Game to develop a Recovery Strategy to recover coho salmon.

The Salmon and Steelhead Recovery Coalition (SSRC) petitioned the Commission for the listing for coho salmon under the California Endangered Species Act. The petition resulted from the Coalition's long term concern for and work on behalf of the species. Members of the Coalition filing the petition for listing include:

- Cal Trout,
- Smith River Alliance (SRA),
- The Sierra Club,
- Salmonid Restoration Federation (SRF),
- Environmental Protection Information Center (EPIC),
- Northcoast Environmental Center (NEC),
- Trout Unlimited – California Council,
- Northern California Association of River Guides,
- Coast Action Group (CAG), and
- Pacific Coast Federation of Fishermen's Associations (PCFFA).

Charge to the Recovery Team from the Director

The Director of the Department of Fish and Game (Director) initiated a multi-stakeholder Recovery Team (RT) to consider presence data, historical, current, and potential coho salmon habitat, scientific information concerning the species, current and projected land uses, and other information pertinent to the recovery of coho and to make recommendations to the Director on components of a plan to recover the species.

The Director requested that the team consider the full range of measures, including voluntary as well as regulatory, to accomplish the goal. He also asked the team to consider recovery on a watershed by watershed basis.

Composition of the Recovery Team/Membership

The following were selected by the Director as members of the RT:

Craig Bell, The Sierra Club
Joe Blum, National Oceanic and Atmospheric Administration, Protected Resources Division
Walt Duffy, U.S. Geological Survey—California Cooperative Fisheries Unit, Humboldt State University, science representative
Lawrence Dwight, California Cattlemen's Association
Dan Gale, Senior fisheries biologist, Yurok Tribe
Pam Giacomini, Director of Natural Resources and Commodities, California Farm Bureau Federation
Steve Herrera, Chief, Environmental Review Unit, California State Water Resources Board
Leslie Friedman Johnson, The Nature Conservancy (active member is Wendy Millet)
George Kautsky, Fisheries biologist, Hoopa Valley Tribe
Kallie Kull, Director, FishNet 4 C (counties of Santa Cruz, Monterey, San Mateo, Marin, Sonoma, and Mendocino-Russian River basin)
Mark Lancaster, Five Counties Salmonid Conservation Plan Advisory Committee (counties of Del Norte, Siskiyou, Trinity, Humboldt, and Mendocino)
Dean Lucke, Assistant Deputy Director, Forest Practices, California Department of Forestry and Fire Protection
Deborah McKee, Senior Environmental Planner, California Department of Transportation
Larry Moss, Smith River Alliance
Gail Newton, Project Director, California Department of Fish and Game, Native Anadromous Fish and Watershed Branch
Peter Parker, non-industrial timber owner
Randy Poole, General Manager and Chief Engineer, Sonoma County Water Agency
Mark Rentz, Vice President, Environmental and Legal Affairs, California Forestry Association
Jimmy Smith, Pacific Coast Federation of Fishermen's Associations (PCFFA) (active member is Vivian Helliwell)
Stephanie Tom Coupe, Office of General Counsel, California Department of Fish and Game
Tom Weseloh, California Trout

ORGANIZATION OF THE RECOVERY TEAM

The RT's work was facilitated by Sandra Rennie, who was asked by the DFG Director to assist the RT in its work.

Mission Statement

Ultimately, the thrust of the RT's recommendations is to attain harvestable coho populations within the species' historic California range. Accordingly, the mission statement adopted by the RT is:

Within our vision of restoring populations of coho salmon, including healthy, wild, naturally reproducing populations throughout its range, and restoring tribal, commercial, and recreational fisheries in California, it is our mission to aid the Department in the development of a recovery strategy for coho salmon, with the goal that the species will no longer warrant listing.

Ground Rules for Operation

The RT adopted a set of ground rules to govern its activities. They are attached as Appendix A. Most importantly, the ground rules acknowledge and respect that the many stakeholders represented bring to the RT a wide range of skills, knowledge, and interests, providing for the fullest expression of these attributes, and while encouraging consensus, also provide for expression of alternate approaches to recovering the species where consensus is not possible.

Meeting Topics and Schedule

The RT met in plenary sessions December 2002 through July 2003 an average of three days per month. During this time, meetings were devoted to discussing and developing recommendations for each watershed within the historic range of coho salmon in California. Portions of two meetings were spent learning about interests and concerns of stakeholder groups. Portions of three meetings were devoted to developing a method for prioritizing watersheds according to their potential role in recovery of coho salmon. Portions of two meetings were devoted to developing recovery criteria. Recommendations with statewide significance were developed simultaneously with watershed-specific recommendations and one meeting was devoted entirely to statewide issues. The RT met once with the Shasta and Scott Recovery Team to provide feed back on SSRT's preliminary recommendations.

Between plenary sessions, working groups composed of RT members and, in some cases DFG staff members, devoted many hours to research, conference calls, and meetings to develop sets of proposed recommendations on specific topics for consideration by the whole RT.

Approach to Recovery Planning

The RT was provided numerous background documents by DFG staff, including watershed summaries for each watershed that identified current physical conditions, presence of coho salmon, and problems for coho salmon. Many additional documents

were shared by members of the RT. A web site was created to facilitate information sharing—www.CohoRecovery.org.

Meetings were structured to develop a common understanding of problems and opportunities for coho salmon and issues of importance to stakeholder groups. Typically, a topic was introduced by DFG staff through written materials. DFG and members of the RT provided proposed recommendations in writing for the RT as a whole to consider. Discussion first ensued among those most knowledgeable about the particular issue or watershed. Then others joined the discussion with questions and ideas. Draft recommendations were the work product of all discussions.

Members of the RT, including the DFG members, frequently brought experts to meetings. These experts' knowledge enriched the understanding of the issue or watershed and enabled the RT to significantly refine its recommendations.

Much work was done outside of meetings. Working groups were formed to allow the RT to move faster and farther by doing preliminary work and developing proposed recommendations for all to consider. These working groups were composed of team members who volunteered for each working group and were broadly representative of the whole team.

Developing Recommendations

The RT developed, reviewed, edited and then voted on the language of each recommendation. At its meeting of July 16-17, 2003, the RT again reviewed each recommendation, modified language as necessary, and voted on the final form of each recommendation. All members of the RT were present at the July 16-17 meeting. The two DFG members of the RT did not cast votes on the final recommendations.

RECOMMENDATIONS FOR COHO RECOVERY

Introduction

The RT recognizes the magnitude of the task before us all: we must halt the decline in critical coho habitat in some HUs, continue the good work started to improve coho habitat both in the short term (such as placement of large woody debris to increase stream complexity until natural LWD recruitment can be restored) and the long term through systematic habitat restoration and changes in land use practices throughout the geographic range of coho salmon.

The RT notes that much that will benefit coho salmon is happening already. During every meeting, DFG and members noted cooperative and voluntary actions taken by landowners, non-profit organizations, and others to improve practices and restore habitat.

A partial list of such groups and activities is attached as Appendix B. The RT anticipates adding many additional entries to this list when it resumes its work.

More action is needed and it must begin right away. Members of the RT will actively support the implementation of coho recovery over the long term—through delisting to full recovery of the restoration of tribal, sport, and commercial fisheries.

The RT wishes to underscore particularly the importance of three issues: dedication of adequate DFG and other public agency staff and financial resources to implement the plan over the long term; the need for DFG to actively and consistently enforce the laws available to it to protect coho salmon; and the absolute necessity for cooperation among and financial resources for governmental agencies, landowners and the private sector in order to get the job done.

Recommendations presented below are organized into three categories. The first category contains the RT's recommendation on end-point criteria for de-listing coho and the restoration of a fishable resource and the RT's recommendation on prioritizing watersheds[1] for recovery and restoration efforts. The second category contains recommendations with statewide significance within the historic coho habitat range. The third category contains recommendations pertinent to specific watersheds within the historic range.

Within each category, recommendations adopted by consensus[2] are listed first, followed by recommendations recommended by a majority of voting RT members. Some recommendations that did not receive full consensus have alternate proposals.[3]

In some HUs, the RT did not develop recommendations for some areas (i.e., certain HSAs) that it felt has low or no potential for coho recovery. However, there were also certain other HSAs with potentially good habitat that were not considered due to time constraints. Therefore, at this time, no conclusions should be drawn based on the absence of recommendations on particular HSAs.

Status of the RT Planning Process

Notwithstanding the many hours of work put into developing recommendations to recover coho salmon, the RT was not able to finish its task in the time available. We respectively request that the Director and the Fish and Game Commission grant the additional time available under the statute to allow us to finish our work.

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[1] To provide consistency with existing resource databases, recovery recommendations were compiled according to the geographic divisions of the Calwater 2.2a system. Recommendations are organized by two geographic levels, the *hydrologic unit (HU)*, which generally corresponds to major watersheds or sub-regions within the range of coho, and within each HU by *hydrologic subarea (HSA),* which generally corresponds to major tributary watersheds, Prioritizations are organized by HSA.

[2] Consensus is defined as no "no" votes or abstentions.

[3] There was general agreement on the underlying problems but may have been differences on how to address those problems.

There are a number of topics that we have been unable to address at all and several that are partially complete; a significant number of recommendations are in draft form and pending. Among the topics that particularly require additional attention are:

- Hatcheries
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- Recruitment of Large Woody Debris
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The RT would like to complete its consideration of all of the recommendations for coho recovery. We would like to have the opportunity to coordinate our recommendations with cost information developed by the Department's consulting economist, whose work has not yet begun. The RT did not have time to calibrate the watershed-specific recommendations with its adopted watershed priorities. DFG has not yet provided for RT review its definitions of key terms, some of which will greatly affect the scope of recommendations. The RT also did not have an opportunity to take a step back to make sure that the sum of recommendations is fully adequate to recover the species and the criteria to recover the species will benefit from further review. The RT did not consider whether its recommendations meet the requirements of the Fish and Game Code. And finally, the RT would like to assure appropriate consistency between its statewide recommendations and its watershed-specific recommendations, including the Shasta and Scott HAs.

For all the reasons stated above, the RT requests an extension of time to complete its work. We do not believe that the enclosed set of recommendations is sufficiently comprehensive to equate to a recovery plan unless and until its many deficiencies are corrected.

Recovery Criteria

The Recovery Team has adopted the following framework for delisting criteria and restoration of fisheries criteria. Numerics for each criterion are to be developed jointly by DFG and NOAA Fisheries.

The Framework for Coho Salmon Recovery Criteria

The primary and statutory goal of the recovery strategy is to recover coho salmon to the point where the listing of coho salmon under CESA is no longer warranted. An additional goal is the restoration of tribal, recreational, and commercial coho salmon fisheries in California (see Section VI below). Delisting for purposes of CESA would occur when incidental take from recreational fishing and by-catch from commercial fishing could be sustained without risking probability of extinction, although by-catch will still be subject to regulation by the Pacific Fisheries Management Council and NOAA Fisheries.

FRAMEWORK FOR DELISTING CRITERIA

The recovery plan must meet specific conditions that are evaluated by the Fish and Game Commission (§2111.a-d.).[4] These conditions are:

a) The strategy will conserve, protect, restore and enhance coho salmon (as a species);
b) Both the strategy and the implementation schedule are capable of being carried out in a scientifically, technologically, and economically reasonable manner;
c) The strategy is supported by the best available scientific data; and
d) The strategy represents an equitable apportionment of both public and private and regulatory and nonregulatory obligations.

The approach to achieving the primary goal is to improve coho salmon populations and habitat so the species is neither threatened or endangered with extinction throughout or in a significant portion of its range. Hence, the regulations or other protections for coho salmon listed under CESA would no longer be necessary. Achieving this will take a combination of five principle delisting requirements (delisting requirements), addressing coho salmon populations and coho salmon habitat. These principles, and recovery criteria (criteria) for each, are outlined below in a delisting framework.

Each criterion, and the process for developing the objective, measurable components, is listed below. For many of these criteria, the timeline for development is the same as the National Marine Fisheries Service's two technical review teams (TRT) work on the two coho salmon ESUs in California. The Department is participating in both TRTs, and when the TRTs release their public documents, the Department will add the specifics of each criterion to an update of its coho salmon recovery plan and will allow the framework to be adopted as formal delisting criteria. Integrating Department and NMFS timelines for criteria development will not delay the determination of delisting because a

[4] Meeting the additional goal of restoring tribal, commercial and recreational fisheries is not a requirement of the recovery strategy under Section 2105 *et seq.* of the California Endangered Species Act.

determination that delisting or downlisting is warranted will require a sustained trend over multiple coho generations.

The five delisting requirements are linked together by the overall ecological goals they attain through their integration. Those goals are to maximize genetic diversity and persistence through environmental variation and stochastic events and across the range of coho salmon in California. The delisting requirements apply to naturally reproducing stocks of coho salmon, and their fulfillment at the ESU will signal the ability to down- or delist coho salmon under CESA.

Downlisting/ delisting will occur when all of the requirements are fulfilled. Each requirement is fulfilled when all of its recovery criteria are met. Criteria are evaluated by the processes outlined under each criterion

The five delisting requirements for coho salmon recovery in California are:

I. Maintain[5] and protect[6] the number and size of key populations of coho salmon.
II. Maintain and increase the number of spawning adults and maximize freshwater and estuary survival of juveniles in basins to a level that reduces the probability of extinction to an insignificant level.[7]
III. Maintain, and increase the range and distribution of coho salmon to a level that reduces the probability of extinction of an ESU to an insignificant level.
IV. Maintain and protect habitat essential for coho salmon.
V. Maintain, improve, and restore coho salmon habitat to a level that reduces the probability of extinction to an insignificant level.

Important points to remember:

- Because the California Central Coast ESU will be listed as endangered, there will be two sets of criteria. The first set will be developed to determine when the CCC ESU can be down-listed from endangered to threatened. The second set will be for delisting.[8]

- In conjunction with the National Marine Fisheries Service, the Department will be developing metrics for the criteria. Though final adopted metrics may not be identical, they will be consistent between the two agencies.

- Information the Department is gathering through presence~absence surveys, initiated in 2000 and still on-going, will be utilized to establish both the index sampling sites and pool of random sampling sites referred to below in several criteria.

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[5] Maintain: Do not allow further decline (i.e., number and size of populations, amount and quality of habitat).
[6] Protect: to ensure the status and integrity of coho salmon populations, habitat, and essential ecological processes.
[7] Watershed basin: Not using HSA or HA designations at this time, because they are technical GIS terminology and because the watershed scale has not been determined.
[8] The Southern Oregon~Northern California Coastal ESU will be listed as threatened so will have one set of criteria for delisting.

- A method to determine the risk of extinction of coho populations will be developed in cooperation with the federal TRTs.

I. Maintain and protect the number and size of key populations of coho salmon.

Criterion 1 *Key populations are maintained at levels that reduce the risk of their extinction to insignificant levels.*

Process

a. Identify populations within each ESU.
b. Determine population levels that reduce the risk of local extinction to insignificant levels.
c. Develop and implement population monitoring.
d. Identify and apply appropriate protection mechanisms for key populations.

II. Maintain and increase the number of spawning adults and maximize freshwater and estuary survival of juveniles in basins to a level that reduces the probability of extinction to an insignificant level.

Criterion 1 *Maintain current level of spawning and outmigration.*

Process

a. Conduct inland spawning surveys.
b. Conduct ocean and nearshore surveys.[9]
c. Conduct juvenile outmigration surveys.

Criterion 2 *Attain a sustained, increased (specified) level in number of adults returning to spawn at documented, recent spawning sites within basins*

Process

a. Determine what constitutes 'sustained' and the specific increases required.
b. Conduct inland spawning surveys.
c. Conduct ocean and nearshore surveys.
d. Conduct juvenile outmigration surveys.

Criterion 3 *Attain a sustained, increased (specified) level[10] in new spawning sites within basins.*

Process

a. Determine what constitutes 'sustained' and the specific increases required.
b. Conduct inland spawning surveys.

Criterion 4 *Attain a sustained, increased (specified) level of juvenile survival within basins and estuaries.[11]*

Process

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[9] Being discussed as an alternate or complement for inland surveys for adult coho salmon.
[10] Sustained increase: consistent detection of change.
[11] Survival, and not merely production, of young fish is the issue of importance.

a. Determine what constitutes 'sustained' and the specific increases required.
b. Conduct juvenile outmigration surveys.
c. Conduct juvenile estuarine surveys.

III. Maintain and increase the range and distribution of coho salmon to a level that reduces the probability of extinction of an ESU to an insignificant level.

Range is primarily a geographic consideration; distribution is primarily an issue of ecology. Currently, both factors are issues for both ESUs.

Range

The Department is investigating the likely potential to increase the range of the SONCC ESU in the upper Eel River basin, below Scott Dam/Lake Pillsbury, and in the watersheds that flow directly into San Francisco Bay in the CCC ESU. These criteria assume that the areas mentioned are realistic for re-expansion of current range of coho salmon.

Criterion 1 Maintain the current range and distribution of coho salmon.

Process

a. Population monitoring (presence/absence, adult, juvenile outmigration)

Criterion 2 Increase the range of coho salmon to represent the full range (north, south, inland) once occupied.

To make the decision on what is realistic, three parameters will be evaluated:
1. What we know about the present range in each ESU;
2. What we know about the historic range in each ESU;
3. What current conditions exist that might limit or prevent range expansion.

Process

a. Determine what is realistic for range expansion for each ESU.
b. Conduct annual presence-absence surveys.

Criterion 3 Coho salmon are consistently present in across the CCC from Santa Cruz County to Punta Gorda in Mendocino County to restore coastal connectivity.

Process

a. Conduct annual presence~absence surveys.

Distribution

Criterion 1 Attain a sustained (specified) percent increase of suitable streams within basins where there is persistent presence of coho salmon.[12]

Process

a. Determine what constitutes 'sustained' and the target percent increases.
b. Conduct annual presence~absence surveys

[12] Both permanent index sites and rotating random sites will be utilized in the field sample methodology.

Criterion 2 *Attain a sustained (specified) percent increase in the number of suitable streams within basins where there is a persistent presence of improved brood-year representation, from one year out of 3 present to two out of three present.*[13]

Process

a. Determine what constitutes 'sustained' and the target percent increase.
b. Conduct brood year analysis.

Criterion 3 *Attain a sustained (specified) percent increase in the number of suitable streams within basins where there is a persistent presence of the full brood-year compliment.*

Process

a. Determine what constitutes 'sustained' and the target percent increase.
b. Conduct brood year analysis.

IV. Maintain and protect habitat essential for coho salmon.

Criterion 1 *Essential habitat, including biological refugia, for coho salmon, is identified, mapped, and protected in each basin.*

Process

a. Analyze existing watershed assessments and plans.
b. Gather new necessary field data.
c. Conduct new necessary mapping.
d. Develop and apply a habitat quality index (HQI) based on a standard suite of measurable habitat quality parameters.

Criterion 2 *Appropriate mechanisms to protect essential habitat are applied in each basin.*

Process

a. Identify and apply appropriate protection mechanisms for essential coho habitat.

To be determined and likely to have aspects that are universal for the species and unique for the area. Currently, these mechanisms are being identified through the recovery strategy development and are taking the form of statewide or ESU-wide recommendations ("universal") and specific recommendations are different hydrologic scales within watersheds ("unique").

V. Maintain, improve, and restore coho salmon habitat to a level that reduces the probability of extinction to an insignificant level.

Criterion 1 *Maintain areas where coho salmon habitat have already been restored or enhanced.*

Process

a. Identify and apply appropriate maintenance procedures for restored or enhanced coho habitat.

[13] There likely will also be a 0 of 3 to 1 of 3 metric for the CCC ESU.

b. Develop and apply a HQI based on a standard suite of measurable habitat quality parameters.

To be determined and likely having aspects that are universal for the species and unique for the area.

Criterion 2 *Restore, enhance, and maintain habitat already identified for restoration to benefit coho salmon.*

Process

a. Analyze existing watershed assessments and plans.
b. Use Department Salmonid Restoration Grants Program.
c. Use other restoration programs that will benefit coho salmon.
d. Develop and apply a HQI based on a standard suite of measurable habitat quality parameters.

Criterion 3 *A (specified) amount of coho habitat is restored, enhanced, and maintained in a (specified) condition within basins*[14].

Process

a. Evaluate and prioritize non-assessed coho salmon habitat, including biological refugia, for restoration and enhancement potential.
b. Use Department Salmonid Restoration Grants Program.
c. Use other restoration programs that will benefit coho salmon.
d. Use watershed councils and organizations with a component focusing on coho salmon restoration and recovery.
e. Determine amount, quality, and distribution of habitat necessary to reduce the probability of extinction for coho salmon to a level to be considered insignificant.
f. Develop and apply a HQI based on a standard suite of measurable habitat quality parameters.
g. Conduct watershed assessment, monitoring, and analysis.

FRAMEWORK FOR RESTORATION OF FISHERIES

An additional goal of the recovery strategy is to restore coho salmon numbers to the point where tribal, recreational, and commercial fishing may occur. It is the intention of the Department to collaborate with the appropriate tribes and the federal government to accomplish the recovery goal.

VI. Reach and maintain coho salmon population levels to allow for the resumption of tribal, recreational, and commercial fisheries for coho salmon in California.

Coho population levels allowing for fishing exceed the numbers necessary for recovery. Hence, restoration of the fisheries would occur some time after delisting is realized. Restoration of the fisheries would be implemented and monitored through fishing regulations governed by the California Fish and Game Commission and the Pacific Fisheries Management Council and not by the Department through CESA.

[14] Permanent protection is not yet addressed and is an important element to be developed.

After delisting is achieved, the Department would determine how to continue implementation of appropriate elements of the recovery strategy pursuant to and consistent with other applicable local, state, and federal law and voluntary measures.

Recreational Fishing

Criterion 1 *Commence selected recreational fishing for (specified) years once adult populations have been sustained at or exceeded (specified) level, at described in Goals I and II.*[15]

a. Selected recreational fishing
    i. Sites selected based on relative health of coho salmon runs and recreational fishing opportunity and interest.

Process

1. Conduct coho salmon population monitoring.
2. Conduct inland spawning surveys.
3. Conduct creel surveys.[16]
    a. This would include a summary evaluation of what is known about INCIDENTAL MORTALITY to coho salmon from other recreational fishing.

Criterion 2 *Expand recreational fishery to the fullest extent feasible for (specified) years once it is shown that preliminary recreational fisheries have not reduced sustained levels of coho salmon in each ESU over initial (specified) years of fishing*[17].

Process

1. Conduct coho salmon population monitoring.
2. Conduct inland spawning surveys.
3. Conduct creel surveys.

Criterion 3 *Resume permanent, recreational fisheries once expanded recreational fisheries have not reduced sustained levels of coho salmon in each ESU over the initial (specified) years of fishing*[18].

Process

1. Conduct coho salmon population monitoring.
2. Conduct inland spawning surveys.
3. Conduct creel surveys.

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[15] Should be set in a 3-year increment and have an emergency trigger to close recreational fisheries based on events that could threaten coho salmon in a given year.

[16] There is the potential to allow for an experimental fishery, which would not penalize those who caught coho salmon, prior to commencing a longer preliminary fishery. A creel survey strategy would be used to monitor what would occur.

[17] Some areas, likely in the CCC ESU, may require decades, if ever, to allow for any recreational fishing.

[18] Extent of permanently established, recreational fishery will need to be based on any differential, regional effects to coho salmon by recreational catch.

Commercial Fishing

There are two, essential issues for the commercial fishing industry. The primary need is to have coho salmon recovery so that by-catch of coho salmon, when fishing for Chinook or other more abundant salmon species, is no longer a threat to coho salmon. A secondary objective of re-establishing a coho salmon commercial fishery is acknowledged and is not being dismissed at this time.

Criterion 1 *Establish experimental ocean harvesting of other anadromous salmonids for (specified) years once the numbers of ocean coho salmon are sufficient to allow for removal of BY-CATCH restrictions.*[19]

Process

1. Conduct coho salmon population monitoring.
2. Conduct inland spawning surveys.
3. Conduct creel surveys.
4. Conduct commercial vessel catch monitoring.
5. Conduct commercial landing monitoring.

Criterion 2 *Commence experimental, limited commercial coho salmon fishery for (specified) years once it has been determined elimination of by-catch restriction for commercial harvest has not reduced sustained levels of coho salmon in each ESU over initial (specified) years of fishing.*

Process

1. Conduct coho salmon population monitoring.
2. Conduct inland spawning surveys.
3. Conduct creel surveys.
4. Conduct commercial vessel catch monitoring.
5. Conduct commercial landing monitoring.
6. *Conduct focused, financed, experimental commercial fishing.*[20]

Criterion 3 *Establish a limited commercial coho salmon fishery for (specified) years after it has been determined that the experimental commercial fishery has not reduced sustained levels of coho salmon in each ESU over the initial (specified) years.*

Process

1. Conduct coho salmon population monitoring.
2. Conduct inland spawning surveys.
3. Conduct creel surveys.

[19] PFMC regulates ocean fishing. Part of that annual evaluation is by-catch restrictions on various fisheries due to the status of coho salmon. Once this restriction is deemed unnecessary by PFMC, commercial recovery criteria would be triggered.

[20] Finance a limited number of commercial vessels to specifically investigate the ability to and impact of commercial fishing for coho salmon.

4. Conduct commercial vessel catch monitoring.
5. Conduct commercial landing monitoring.

Watershed Prioritization

The RT recommends the adoption of a three-tiered process to prioritize HSAs for coho salmon recovery. This approach: 1) identifies for maintenance and recovery those HSAs supporting the best coho salmon populations in California[21] and identifies those coho salmon populations that are currently at risk of extinction[22]; 2) provides a ranking system for guiding recovery planning actions among HSAs; and 3) identifies those HSAs having barriers to migration that could be corrected with ease, relative to other solutions. Accompanying map products are intended to guide recovery planning actions. *The maps and criteria used to develop them should be considered general guidelines in guiding watershed recovery planning and restoration actions rather than absolute*[23]. Maps and explanation of their use are found in Appendix C.

In HSAs considered refugia for coho salmon, recovery planning will include actions that preserve, protect, and enhance these best remaining populations and their habitats. These HSAs, identified on maps 1A and 1B, should be considered a top priority for Department of Fish and Game (DFG) resources and resources available for restoration of specific watershed problems.

Each population of coho salmon has potential to represent unique genetic and life history attributes. Some populations of coho salmon are at greater risk of extinction than others, particularly those in the central coast of California. Identifying these populations will enable resource managers and others to guide actions to avoid and begin recovery. HSAs in which populations of coho salmon are at risk of extinction, identified on maps 2A and 2B, should also receive special consideration for maintenance and recovery actions.

Ranking of HSAs relative to their potential for coho salmon recovery is intended to help guide recovery planning actions that may improve habitat within these HSAs. This ranking incorporated; information on coho salmon populations, watershed condition and risks to salmon within these HSAs. HSAs scoring higher in this ranking should be given priority in the expenditure of DFG resources or resources available for restoration, other considerations being equal. Rankings of HSAs for maintenance and recovery actions are presented in maps 3A and 3B.

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[21] Refugia watersheds are defined here using presence of coho salmon, since abundance or population information is not available for all watersheds in the state. In the SONC ESU, those HSAs having consistent presence of coho salmon greater than 50% are considered refugia, in the Central California Coast ESU, those HSAs having consistent presence of coho salmon greater than 10% are considered refugia.

[22] Population risk, as used here represents risks to coho salmon from human actions, since state wide coho salmon population abundance and genetic data are not available. It combines risk (human density, water diversions, road density) and population parameters (consistent presence of coho salmon, isolation index for coho salmon populations, and run length of coho salmon populations).

[23] Some situations may over-ride or alter recommended priorities. Examples include, but are not limited to, willing land owners, high cost-shares, unique funding opportunities or partnerships, multi-species projects, etc. Cost effectiveness must be considered regardless of priorities.

Recovery planning actions in watersheds experiencing barriers to migration will include providing passage for both juvenile and adult coho salmon. The distribution of barriers is illustrated in maps 4A and 4B. These HSAs should be viewed as cost-effective opportunities to provide increased habitat, relative to other recovery planning actions.

The databases supporting this prioritization should be updated periodically (perhaps at 3-5 year intervals). This would allow review and change, if warranted, of the HSA rankings.

Finally, the prioritization criteria proposed is for recovery of coho salmon (as per CESA and Fish and Game Code) and may or may not apply to other salmonid species such as Chinook salmon, steelhead and coastal cutthroat trout.

1) Refugia HSAs[24] (Maps 1A and 1B) and Risk of Extinction (Maps 2A and 2B)

   a) Rational: Those HSAs in the SONC ESU having consistent presence of > 50% should be considered refugia watersheds. Within the Central California Coast ESU HSAs having consistent presence of > 10% should also be considered refugia watersheds. However, even these HSAs have problems that could reduce productivity and these problems should be addressed.

      Risk of extinction to coho salmon is ranked on HSA risks and coho population parameters, since coho salmon population abundance and genetic data are not available state-wide. It combines risk (human density, water diversions, road density) and population parameters (consistent presence of coho salmon, isolation index for coho salmon populations, and run length of coho salmon populations). Those watersheds in which risk of extinction is high should be given equal priority as refugia watersheds.

   b) Action:
      i) On public lands, consider full maintenance and recovery of instream and riparian areas.

      ii) On private lands, provide incentives for riparian maintenance and recovery and recovery planning activities that maintain and enhance coho salmon habitat.

      iii) Identify any problems within these HSAs and recommend actions (for example; restoring estuarine habitats in Eureka Plain, Redwood Creek and Smith River).

      iv) Recommend that refugia watersheds receive priority in the application of California coho recovery team statewide recommendations.

[24] Maps and explanation of how to use them are found in Appendix C.

2) Restoration Potential (Maps 3A and 3B)

a) Rational: Those HSAs scored higher for recovery planning actions are known to support populations of coho salmon and have potential habitat that has been compromised. Coho salmon populations in HSAs ranking high (4-5) in the combined population, risk and habitat potential categories should have potential to respond when restoration actions are taken.

b) Action:
   i) Review the CRT recommendations for these HSAs and determine if: near-term (< 9 years) actions are adequate to maintain these populations at their current level, and

   ii) Review the CRT recommendations for these HSAs to determine if near-term and long-term actions will allow for expansion of these populations in all brood-years.

   iii) If identified recovery planning actions satisfy categories (b,i) and (b,ii) above, use the prioritizing scheme to guide watershed restoration and other identified recovery planning actions. If identified recovery planning actions do not satisfy categories (b,i) and (b,ii) above, then recommendations must be upgraded.

   iv) Review the CRT recommendations to determine if they are specific enough to direct restoration actions. If not, do we currently have the knowledge to upgrade the CRT to be more specific?

   v) If we currently do not have knowledge to make CRT recommendations more specific, are there locally-based watershed groups working or landowners who are willing to work on watershed assessments to develop specific actions to restore coho habitat? (Smith River Plan, Salmon River Plan, Redwood Creek NCWAP, Mattole NCWAP, Eel River Draft Plan, etc.).

   vi) If not, consider re-directing DFG staff to begin such a process.

3) Disconnected Habitats (Maps 4A and 4B)

a) Rational: Eliminating barriers to migration represent among the most effective restoration actions that can be taken. Barriers to migration limit the distribution of coho salmon and limit recovery potential. Removing barriers, including but not limited to those created by federal, state, county or private road culverts, rail crossings, tide gates and small impoundments are high priorities. Addressing levees for flood control, access over larger impoundments, other hydraulic or thermal barriers may present greater challenges, but must also be considered important components of disconnected habitats.

b) Action:
   i) Plot location of barriers and score barriers using two criteria: 1) their relative importance to the amount of coho salmon habitat created by their removal and 2) the relative ease or cost of their removal (culverts, tide gates and small impoundments = 3, levees and large impoundments = 2, thermal and hydraulic barriers, and other barriers requiring sites specific evaluation = 1) .

   ii) Compare CRT recommendations with plotted data.

   iii) Determine if CRT recommendations are specific enough to direct restoration actions.

Statewide Recommendations

The RT sees the function of statewide recommendations as generally appropriate to a wide range of watersheds. In some cases, the language of a statewide recommendation has literally been repeated in a number of watershed-specific recommendations.

Water Flow

Consensus Recommendations

SW 1-B-1 DFG in coordination with SWRCB and NOAA Fisheries to identify adequate designs, develop site-specific designs, and promote passive diversion structures that are self-regulating. Passive diversion devices are designed to allow diversion of water only when minimum flow requirements are exceeded.

SW 1-D-1 Encourage elimination of unnecessary and wasteful use of water from coho salmon streams, through education components of this plan. Encourage water conservation for existing uses.

SW 1-D-4 SWRCB, RWQCB, DFG, CDF, Caltrans, and counties, in cooperation with NOAA Fisheries, should evaluate the rate and volume of water drafting for dust control in streams or tributaries and where appropriate, minimize water withdrawals that could impact coho salmon. These agencies should consider existing regulations or other mechanisms when evaluating alternatives to water as a dust palliative (including EPA-certified compounds) that are consistent with maintaining or improving water quality.

SW 1-D-5 DFG should explore ways to improve implementation of the DFG Lake or Stream Alteration Notification and Agreement Process to protect coho salmon from the adverse affects of projects that would alter the bed, banks, channel, or natural flow of coho salmon streams.

SW 1-D-6 DFG, CDF, SWRCB and the RWQCB should pursue funding for the assessment, information management, and regulatory compliance monitoring of water diversions within the coho salmon range. Direct DFG and SWRCB to coordinate the upgrade of the water rights information system so that water allocations can be readily quantified by watershed.

SW 1-D-7 Provide conservation incentives to minimize negative effects on coho salmon of water drafting for roads and fire suppression, including, but not limited to:

a. Streamline permitting for actions that result in an improvement of instream flows;
b. Support multiple uses of water storage systems (e.g., USFS, CDF, counties, landowners); and

c. Cost-share funding where low-flow, trickle recharge water storage is used to avoid adversely affecting stream flow or coho salmon habitat.

SW 1-D-8 Support and expand the DFG Streamflow Evaluation Program:

a. To the extent resources, including funding and positions, are available, DFG should conduct stream flow studies to support DFG recommendations for water diversion projects and implement Public Resources Code §§ 10000-10005 for priority coho salmon streams.

b. The Recovery Team supports providing additional resources to DFG, including funding and positions, to enhance DFG's ability to conduct flow studies.

Non-Consensus Recommendations

SW 1-C-1 Direct county and city planning toward water supply development and growth that are not harmful to coho salmon habitat. Work in coordination with the California Department of Housing and Community Development, Association of Bay Area Governments, counties, cities, water districts, and others. Provide funding and education to accomplish this. Votes: Yes=12; No=2; Abstain=5. No votes from Lancaster and McKee. Abstain votes from Dwight, Giacomini, Kautsky, Parker, and Rentz.

Water Rights

Consensus Recommendation

SW II-B-3a Within the range and distribution of coho salmon, diversion screens shall be constructed, repaired, upgraded, reconstructed, and maintained in accordance with DFG/NOAA Fisheries Screening Criteria, or responsible parties must obtain incidental take authorizations for operation of the screens. Those that comply with the DFG/NOAA Fisheries Screening Criteria will be assumed by the Department to not take coho salmon with respect to the screens.

Non-Consensus Recommendations

SW II-A-1 DFG should request SWRCB to review authorized diversions that have no provisions to protect coho in order of coho priority streams. Develop incentives for users of authorized diversions under 250 cubic feet per second to rework the diversions to protect coho. Votes: Yes=18; No=0; Abstain=1. Abstain vote from Kautsky.

SW II-A-2 Identify unauthorized diversions. Votes: Yes=18; No=0; Abstain=1. Abstain vote from Kautsky.

SW II-A-4 Petition the SWRCB to add priority coho salmon streams to the Declaration of Fully Appropriated Streams where flows are a limiting factor. DFG should continue to participate in the water rights application processes to ensure where

applicable requisite findings are made in response to applications, that water is not available for appropriation. Votes: Yes=18; No=0; Abstain=1. Abstain vote from Giacomini.

SW II-A-5

a. Encourage SWRCB to quantify water use and availability in coho salmon streams.
b. Direct DFG to participate in water rights application proceedings before the SWRCB to ensure that water availability analyses on priority coho salmon streams accurately reflect water use and availability.
c. Encourage SWRCB to require installation of stream flow gauging devices on priority coho salmon streams when approving water development projects.
d. Encourage SWRCB to continue to require riparian and pre-1914 water users to file annual statements of diversion and use.
e. Direct DFG and SWRCB to coordinate the upgrade of the water rights information system so that water allocations can be readily quantified by watershed. Votes: Yes=18; No=0; Abstain=1. Abstain vote from Giacomini.

SW II-B-1 Pursue opportunities to acquire or lease water, or acquire water rights from willing sellers for coho salmon recovery purposes. DFG should develop incentives for water right holders to petition the SWRCB to dedicate in-stream flows for the protection of coho salmon. Votes: Yes=18; No=0; Abstain=1. Abstain vote from Giacomini.

SW II-B-2 The Recovery Team recommends that counties and cities in cooperation with DFG and SWRCB evaluate the cumulative effects to coho salmon from the creation of new riparian water rights associated with land sub-divisions and rezonings. Where cumulative impacts on flows will be detrimental to coho salmon, consider requirements that would not allow riparian water rights for the new parcels at the time sub-division approvals are made. Votes: Yes=14; No=1; Abstain=4. No vote by Giacomini. Abstain votes by Dwight, Herrera, Kull, Rentz.

Fish Passage

Consensus Recommendations

SW III-A-1 Fish Passage Forum should work with federal, state, and county entities, private landowners, and other interested parties to continue and complete assessments and prioritizations for correction of fish passage barriers.

SW III-A-2 The State of California should maintain a database of barriers to fish passage.

SW III-C-1 To provide fish passage, encourage funding authorities to allocate adequate resources to prioritize and upgrade culverts within the range of coho salmon to pass 100-year flows and the expected debris loads (e.g., LWD that might be mobilized).

SW III-C-2 DFG and NOAA Fisheries should:

a. Evaluate NOAA Fisheries standards for passage at summer dams;
b. Develop a joint policy and guidelines that require passage at summer dams; and
c. Implement the recommendations.

SW III-C-4 Encourage FEMA to fund upgrades to flood-damaged facilities to meet the requirements of the Endangered Species Act.

SW III-C-6 Encourage funding authorities to allocate adequate budgets to federal, state, and local agencies for fish passage projects. This includes, but is not limited to, funding for road maintenance programs and capital project activities.

Non Consensus Recommendations

SW III-C-3 DFG and NOAA Fisheries evaluate the desirability and feasibility of trapping and relocation to underutilized high quality habitat of soon-to-be-terminal coho salmon due to stranding. Implement recommendations. Develop a policy to address this issue and implement recommendations arising from the evaluation. Votes: Yes=18; No=0; Abstain=1. Abstain vote from Kautsky.

SW III-C-5 DFG and NOAA Fisheries evaluate the desirability and feasibility of trapping and relocation to underutilized, high quality habitat of soon-to-be-terminal coho salmon due to high density of coho salmon. Develop a policy to address this issue and implement recommendations arising from the evaluation. Votes: Yes=18; No=0; Abstain=1. Abstain vote from Kautsky.

Pollutants

Consensus Recommendations

SW V-E-1 DFG shall cooperate with local environmental health agencies and other agencies to continue outreach, education, and enforcement related to hazardous materials spills, illegal dumping, and household hazardous waste and hazardous materials spills in creeks. Provide education on the Cal Tip program.

SW V-E-3 DFG should continue to fund and support the Cal Tip program. DFG in coordination with NOAA Fisheries, SWRCB, and the RWQCBs should provide additional training for wardens to identify water pollution problems and promote coordination with the RWQCBs. DFG should also coordinate water rights training with SWRCB staff.

Non Consensus Recommendations

SW V-B-1 Improve water quality by reducing or minimizing point and non-point domestic and municipal sources of nutrient input (i.e., sewage treatment plant discharge,

septic system discharge, and storm drain runoff). Support efforts by cities and rural communities to complete system upgrades to achieve Clean Water Act compliance. Votes: Yes=17; No=2; Abstain=0. No votes cast by Dwight and Giacomini.

Alternate language offered by Dwight, Giacomini, Herrera, Lucke, and Rentz: Improve water quality by reducing or minimizing domestic and municipal sources of nutrient input (i.e., sewage treatment plant discharge, septic system discharge and storm drain run off). Support efforts by cities and rural communities to complete system upgrades to achieve Clean Water Act compliance.

Sediments

Consensus Recommendations

SW VI-A-2 Identify and prioritize specific sediment source locations for treatment that may deliver sediment to coho streams. Encourage protocols such as the Fish and Game Habitat Restoration Manual Guidelines. Educate and provide technical assistance to landowners to implement upgrades.

SW VI-B-1 The Recovery Team encourages agencies and landowners to restore natural drainage patterns and minimize hydrologic connectivity of roads, where feasible. Encourage funding agencies to provide annual funding for implementation of the program.

SW VI-B-2 The Coho Recovery Team supports local government and private landowner actions to reduce identified sediment input from upslope sources. Prioritize remediation activities, which would include slope stabilization and minimizing sediment production.

SW VI-C-1 Encourage when necessary and appropriate, restricted access to unpaved roads in winter to reduce road degradation and sediment release. Where restricted access is not feasible, encourage measures such as rocking to prevent sediment from reaching coho streams.

SW VI-D-1 Encourage Federal, State, and county agencies and private landowners to reduce impacts to coho salmon habitat from public and private road systems. Continue road and/or watershed assessments to identify and prioritize sources and risks of road-related sediment delivery to watercourses. Support activities to:

a. Reduce road densities where necessary and appropriate;
b. Upgrade roads and road maintenance practices to eliminate or reduce the potential for concentrating run-off to streams during rainfall events. Employ best available technology when appropriate;
c. Decrease potential for stream flow to become diverted at road crossings during high flow events resulting in flow along the road that returns to the channel at undesirable locations;

d. Stabilize slopes to minimize or prevent erosion and to minimize future risk of eroded material entering streams;
e. Minimize alteration of natural hill slope drainage patterns; and
f. Encourage funding authorities to allocate adequate budgets to federal, state, and local agencies and private landowners for road maintenance activities, capital project activities, and dedicated funding to pay for fish passage projects.

Non Consensus Recommendations

There are no non consensus recommendations on Sediments.

Water Temperature

Non Consensus Recommendations

SW X-B-1 Identify and implement actions to maintain and restore water temperature to meet habitat requirements for coho salmon in specific streams. Votes: Yes=18; No=0; Abstain=1. Abstain vote from Dwight.

In-Stream Large Woody Debris

Consensus Recommendation

SW XI-B-2 The Coho Recovery Team recommends funding and permit incentives be made available to restore stream habitat where lack of LWD, riparian cover, simplified stream morphology and other conditions have been determined to be limiting factors to coho salmon.

Non Consensus Recommendation

There are no non consensus recommendations for in-stream large woody debris.

LWD Recruitment

Consensus Recommendations

SW XII-B-1a Prioritize for maintenance riparian vegetation communities that provide good opportunity for conifer LWD recruitment. Communicate the prioritization to appropriate agencies, restoration funding groups, and landowners.

SW XII-B-1b Prioritize for restoration riparian vegetation communities for LWD recruitment. Communicate the prioritization to appropriate agencies, restoration funding groups, and landowners.

Non Consensus Recommendations

SW XII-B-2 DFG to provide, and encourage other funders to provide, funding and technical support for riparian restoration. Votes: Yes=18; No=0; Abstain=1. Abstain vote cast by McKee.

SW XII-B-3 Appropriate federal, state, and county agencies shall utilize and enforce all existing laws including but not limited to:

a. DFG streambed alteration agreements (1600 process);
b. Coastal Zone ordinances;
c. State Lands Commission regulations;
d. County ordinances; and
e. Any other legal means

To prevent illegal removal of large woody debris (LWD) within the 100-year flood plain and estuaries with the intent of protecting habitat for the benefit of coho salmon, no LWD should be removed unless it is allowed for health and/or safety purposes under existing law or approved processes. Any LWD removed for health and safety reasons should be made available to the resource agencies for restoration. Any resultant fines should be allocated to mitigate the loss of LWD and expedite coho salmon recovery. Fines should be set high enough to fully mitigate any in-stream LWD enforcement. Votes: Yes=10; No=9; Abstain=0. No votes from Dwight, Giacomini, Kull, Lancaster, McKee, Parker, Pool/Baldridge, Rentz, and Smith/Helliwell.

Alternate language offered by Dwight, Giacomini, Herrera, Lucke, and Rentz: Appropriate federal, state, and local agencies shall utilize and enforce all existing laws to prevent the illegal removal of large woody debris (LWD) within the riparian corridor of streams where coho presence has been identified. All LWD located on state public lands within the estuaries and riparian corridors should be retained unless it is a threat to public health or safety or impedes existing access to and through the public land. Where a planning watershed has been analyzed and LWD is determined to be a limiting factor for the recovery of coho salmon private landowners are encouraged to retain LWD within the estuaries and riparian corridors of those streams where coho presence has been identified. For those stream courses determined by DFG to be of high priority for the recovery of coho salmon, the State is encouraged to enter into an agreement to compensate private landowners for retaining LWD and trees designated for future LWD recruitment if such material has merchantable value in terms of lumber production.

Stream Complexity

Consensus Recommendations

SW XIII-C-1 Work with USACE to modify maintenance manuals for consistency with habitat requirements and protection for coho salmon.

Non Consensus Recommendations

SW XIII-C-2 Where appropriate and feasible, work with all parties, including landowners, to reconfigure levees and channelized streams to benefit coho salmon. Votes: Yes=18; No=0; Abstain=1. Abstain vote from Dwight.

Ecological Refugia

Consensus Recommendations

SW XV-A-1 Identify key refugia and inform land managers and other agencies.

SW XV-B-1 Maintain or re-establish geographic distribution of coho salmon by continuing to allocate substantial improvement efforts towards identified key refugia with substantial coho salmon populations and/or otherwise suitable conditions.

Non Consensus Recommendations

There are no non consensus recommendations.

Habitat Fragmentation

Consensus Recommendations

SW XVI-B-1 Restore habitat connectivity between coho populations in coastal and low gradient inland streams to promote the long term viability of coho salmon.

SW XVI-B-2 Reduce habitat fragmentation by restoring fish passage between high quality habitat channels to allow for gene flow between breeding populations within targeted coho watersheds.

Non Consensus Recommendations

There are no non consensus recommendations on Habitat Fragmentation.

Competition

Consensus Recommendations

SW XVIII-A-1 Develop a rapid-response eradication plan for when invasive non-native species that negatively affect coho are newly detected.

SW XVIII-A-2 Develop management guidelines to mitigate the impacts of non-native fish species on coho.

SW XVIII-A-3 Encourage removal of non-native fish species from stock ponds where these fish pose a threat to coho salmon.

Non Consensus Recommendations

There are no non consensus recommendations on Competition

Genetics

Consensus Recommendations

SW XX-B-1 Promote recovery actions that maintain the local genetic diversity of coho populations to maximize fitness and long-term viability of coho salmon.

Non Consensus Recommendations

There are no non consensus recommendations on Genetics.

Riparian Vegetation

Consensus Recommendations

SW XXII-A-2 Where necessary, provide riparian protection from livestock by providing off-site watering.

SW XXII-A-4 Encourage restoration of LWD and shade by improvement of existing riparian zones through planting, release of conifers, and control of alders, blackberries, and other competitors. DFG and others to provide incentives to landowners, such as technical support.

Non Consensus Recommendations

SW XXII-A-5 Inventory and evaluate on a site-specific basis the adequacy of stream buffer zones and riparian and wetland habitat on public and private lands. DFG should coordinate with other agencies with regulatory jurisdiction. Votes: Yes=13; No=3; Abstain=3. No votes from Dwight, Kull, and Poole (Baldridge). Abstain votes from Duffy, Giacomini, and Kautsky.

SW XXII-A-6 Develop and implement county, city, and landowner initiatives, including funding where appropriate, to improve stream buffers that have been determined to be inadequate. Votes: Yes=14; No=5; Abstain=0. No votes from Dwight, Kull, Lancaster, Giacomini, and Rentz.

Land Use

Consensus Recommendations

SW XXV-A-1 Recognizing the importance of preserving a rural landscape for coho salmon, the Coho Recovery Team urges the Governor and the state legislature to continue providing subvention funds to counties for the Williamson Act contracts.

SW XXV-B-4 The Coho Recovery Team supports continued economically sustainable management of forest and agricultural lands in the range of coho salmon to reduce the potential for conversion to residential or commercial development.

SW XXV-B-5 The Recovery Team recommends that within the CCC ESU counties, cities, and landowners evaluate the adequacy of riparian buffers and development setbacks where needed for protecting riparian and wetland habitat on county, city, and private lands adjacent to coho salmon streams.

Non Consensus Recommendations

SW XXV-B-2 The Recovery Team recommends that counties, cities, and landowners within the SONCC ESU establish and implement riparian setbacks according to the following criteria:

a. Solid-line streams are main tributaries requiring either a 100-foot minimum buffer that includes the riparian vegetation or the riparian vegetation plus 50 feet, whichever is greater.
b. Dotted-line streams are secondary tributaries requiring either a 50-foot minimum buffer that includes the riparian vegetation or the riparian vegetation plus 25 feet, whichever is greater.

If development restrictions related to mandatory requirements do not allow a project to completely avoid the area of the buffer zone outside the riparian vegetation, the project proponent may average the setback distance along the riparian habitat for the length of the project. Enforce policies with ordinances. Votes: Yes=16; No=3; Abstain=0. No votes from Dwight, Giacomini, and Rentz.

Alternate language offered by Dwight, Giacomini, Herrera, Lucke, and Rentz: The Recovery Team recommends that counties, cities, and landowners within the SONCC ESU establish and implement riparian setbacks on any development or new construction where it is determined that such setbacks are necessary to protect coho salmon. If development restrictions related to mandatory requirements do not allow a project to completely avoid the area of a riparian setback outside of the riparian vegetation, the project proponent may average the setback distance along the riparian habitat for the length of the project.

SW XXV-B-3 The Recovery Team encourages counties to revise General Plans, Local Coastal Plans, and/or Community Development Plans where necessary, to direct development away from riparian habitats on coho salmon streams or tributaries. Establish incentives and standards to protect riparian and wetlands areas on private lands, based on flexible subdivision design and other cooperative land development mechanisms. Votes: Yes=17; No=0; Abstain=2. Abstain votes from Dwight and Giacomini.

SW XXV-B-6 The Recovery Team recommends that within the CCC ESU counties, cities, and landowners develop and implement initiatives to expand inadequate streamside protections. Include setbacks for development, restrictions on grading activities and setbacks for septic system development. Enforce policies with ordinances. Votes: Yes=16; No=2; Abstain=1. No votes from Dwight and Rentz. Abstain vote from Giacomini.

Alternate language offered by Dwight, Giacomini, Herrera, Lucke, and Rentz: The Recovery Team recommends that within the CCC ESU counties, cities, and landowners evaluate the adequacy of riparian buffers on any new development or construction where it is determined that such setbacks are necessary to protect coho salmon. Increase the buffer zone where needed for protecting riparian and wetland habitat on county, city, and private lands adjacent to coho salmon streams.

SW XXV-C-1 Acquire conservation easements or land in fee title from willing landowners to protect coho salmon habitat. Votes: Yes=16; No=2; Abstain=1. No votes from Dwight and Giacomini. Abstain vote from Rentz.

Alternate language offered by Dwight, Giacomini, Herrera, Lucke, and Rentz: Support purchase of conservation easement from willing sellers, which would protect coho salmon habitat and keep lands in active agricultural and forestry production and ownership.

Public Outreach

Consensus Recommendation

SW XXVIII-B-1 Recommend that DFG support local governments, interested parties, and property owners in the development of incentives for landowners who participate in activities that exceed legal requirements or timelines to protect and/or restore coho salmon habitat and watershed processes.

Non Consensus Recommendations

There are no non consensus recommendations on public outreach.

Research and Monitoring

Non Consensus Recommendations

SW XXIX-D-1 The Recovery Team recommends that the Department of Fish and Game work with landowner groups and other stakeholders to develop policy and, if necessary, statutory changes to allow collection of data related to recovery of coho salmon while maintaining appropriate confidentiality of site-specific information. Votes: Yes=12; No=4; Abstain=2. No votes from Bell, Helliwell, Moss, and Weseloh. Abstain votes from Gale and Kautsky.

Alternate language offered by Bell, Weseloh, and Moss: The Recovery Team recommends that the Department of Fish and Game work with landowner groups, independent (ngo) researchers, and other stakeholders to develop policy and, if necessary, statutory changes to allow collection of data related to recovery of coho salmon while maintaining appropriate confidentiality of site-specific information. California Code provides for unrestricted access for the purpose of data collection by DFG staff by flotation device and on foot within the mean high water line of navigable rivers. The Recovery Team is not recommending changes to those provisions. To further the scientific understanding of factors contributing to the decline and recovery of coho salmon it is important to share data collected with public funding with public and private researchers. To be of use data needs to be shared by DFG and other agencies in electronic form and in a timely manner, where and when possible. Independent research and peer review to be meaningful requires raw data, not data summaries. To provide for landowner confidentiality, ownership names can be deleted. To be useful for analysis, clear relationship to nearest tributary confluences need to be provided.

Integration of Recovery Strategy with Other Plans and Programs

Consensus Recommendations

SW XXX-B-5 DFG should continue participation in the TMDL process to ensure the standards provide protection of coho salmon.

SW XXX-D-1 The Recovery Team recommends implementation of Fire Safe Councils' recommendations promoting the reduction of fuel near residences to reduce human-caused fires spreading into the forest and causing harm to coho salmon habitat.

SW XXX-E-1 The Recovery Team recommends that counties should continue to implement FishNet 4C and Five County Salmon Restoration goals, including adopting and implementing written Operations and Maintenance Guidelines, training staff on guidelines, addressing fish passage and road sedimentation issues, developing riparian

protections, promoting alternatives to conventional bank stabilization, and developing land use policies favorable for coho salmon. (FishNet 4Ccounties: Sonoma, Marin, San Mateo, Santa Cruz, and Russian River portion of Mendocino; Five Counties: Del Norte, Siskiyou, Trinity, Humboldt, and Mendocino)

SW XXX-E-2 Incorporate the FishNet 4C and Five County adopted Roads Operations and Maintenance Guidelines with incidental take authorizations under CESA and as part of the Coho Recovery Plan.

SW XXX-J-1 Recommend that after delisting is achieved, the Recovery Team and the Department review the recovery strategy to determine how to continue implementation of appropriate elements of the recovery strategy, pursuant to and consistent with other applicable local, state, and federal law and voluntary measures, to achieve restoration of tribal, recreational, and commercial fisheries and avoid relisting of the species.

Non Consensus Recommendations

SW XXX-B-1 DFG propose a preferred TMDL schedule and encourage RWQCBs to prepare and implement TMDL plans for key coho salmon watersheds according to this schedule. Votes: Yes=10; No=6; Abstain=2. No votes from Dwight, Giacomini, Kull, Lucke, Parker and Rentz. Abstain votes from Baldridge and Herrera.

Alternate language offered by Dwight, Giacomini, Herrera, Lucke, and Rentz: For those TMDLS where the impaired beneficial use of water is freshwater habitat for coho salmon, DFG is encourage to assist the RWQCBs to prepare TMDLs in a manner that is timely and consistent with the approved Coho Recovery Strategy.

SW XXX-B-3 RWQCBs should coordinate with DFG, landowners, and interested parties to develop and implement sediment reduction and water quality improvement plans and meet and expedite the Clean Water Act (TMDL) requirements through technical assistance and incentives to landowners, making watersheds with coho salmon the highest priority for assistance. Votes: Yes=14; No=0; Abstain=4. Abstain votes from Dwight; Herrera, Kull, and Rentz.

Alternate language offered by Dwight, Giacomini, Herrera, Lucke, and Rentz: RWQCBs are encouraged to coordinate with DFG, landowners and interested parties to develop and implement sediment reduction and water quality improvement plans for those waterbodies where the impaired beneficial use of water is freshwater habitat for coho salmon. The RWQCBs are also encouraged to expedite the implementation schedule for such TMDLs by providing technical assistance and incentives to landowners.

SW XXX-B-6 Request that EPA and RWQCBs conduct outreach to DFG, other state agencies, and local government entities to participate in the TMDL process to ensure the standards provide protection of coho salmon. Votes: Yes=15; No=2; Abstain=1. No votes from Giacomini and Parker. Abstain vote from Dwight.

Permitting

Consensus Recommendations

Unnumbered (II5.): Encourage state, federal, and local governmental agencies to work with stakeholders in identifying ways to remove regulatory barriers (e.g., permitting and environmental review) to expedite activities that will contribute to the recovery of coho salmon. Examples of ideas to consider may be: (1) the creation of local permit assistance centers; (2) seeking categorical exemption from CEQA; (3) seeking a certified regulatory program under CEQA for certain activities.

Unnumbered (II6.): Encourage the Department of Fish and Game, NOAA Fisheries, U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers to coordinate and develop programmatic incidental take authorizations (e.g., 404 permits, Section 7 consultations, 4(d) rules) for activities that will contribute to the recovery of coho salmon, including but not limited to the Department's Fisheries Restoration Grants Program.

Unnumbered (II11.): Support continued and increased funding for the California Conservation Corps to implement coho salmon restoration projects.

Non Consensus Recommendations

SW XXXI-A-1 Recommend that DFG work with NOAA Fisheries and other interested parties to develop regulatory assurance mechanisms to encourage land managers, local governments, and landowners to implement coho salmon habitat enhancement projects. Votes: Yes=18; No=0; Abstain=1. Abstain vote from Kautsky.

SWXXXI-A-2 DFG coordinate with the State Water Resources Board and appropriate regional water boards to implement water quality monitoring and streamline permitting of coho habitat restoration projects (RWQCB 401, USACE 404, NOAA Fisheries, and USFWS permitting). Votes: Yes=18; No=0; Abstain=1. Abstain vote from Kautsky.

Unnumbered (II7.) Support the Department of Fish and Game in seeking new funding to pay for environmental review and permitting of voluntary restoration projects that will contribute to the recovery of coho salmon. Votes: Yes=17; No=0; Abstain=2. Abstain votes from Kautsky and Kull.

Watershed Planning

Non Consensus Recommendations

SW XXXII-B-2 Provide adequate funding to the agencies to coordinate and support preparation of comprehensive watershed assessments and restoration plans that:

a. Include a professional fisheries scientist (one who is certified by the American Fisheries Society or the equivalent);
b. Assess stream flow, water diversions, water quality, sediment sources, fish barriers, riparian corridors, in-stream habitat, estuarine habitat, and land use as necessary; and
c. Identify, prioritize, and implement site-specific restoration projects to benefit coho salmon. Votes: Yes=16; No=0; Abstain=3. Abstain votes cast by Dwight, Giacomini, and Rentz.

Enforcement

Consensus Recommendation

SW XXXIII-A-08 The Statewide Recovery Team recommends that DFG examine penalty schedules and, if necessary, explore ways to adjust penalty schedules to reflect the impact of violations to coho salmon, taking into account other penalties that may be enforced in association with the same activity.

Non Consensus Recommendations

SW XXXIII-A-01 The Statewide Coho Recovery Team supports full enforcement of existing laws, codes, regulations, and ordinances that address the protection of coho salmon and their habitat. These include, but are not limited to: Fish and Game Code Sections 1600, 5650, 5900 through 6100 (with an emphasis on 5901, 5937, and 6100), Public Resources Code Sections 10000-10005, the California Endangered Species Act, and the Federal Endangered Species Act. The term "enforcement" includes, but is not limited to, education, issuing warnings, issuing citations, developing cases for referral to district attorneys offices and/or the Office of the Attorney General. Votes: Yes=16; No=0; Abstain=3. Abstain votes from Giacomini, Kautsky, and Kull.

SW XXXIII-A-02 The Recovery Team supports adequate budgetary funding and positions for agencies with enforcement authority (e.g., DFG, SWRCB, RWQCBs, NOAA Fisheries, cities, counties) to enforce laws and codes relevant to coho salmon protection. Votes: Yes=16; No=0; Abstain=3. Abstain votes from Giacomini, Kautsky, and Kull.

SW XXXIII-A-03 The Recovery Team recommends DFG to take the lead in reviewing diversions and use of water in priority coho salmon streams to determine which permits and/or licenses need modification for the protection of coho salmon. This program must be adequately funded to be implemented. DFG should reevaluate the projects and formally request that the SWRCB recondition permits/licenses for protection of coho salmon. This may require DFG to file complaints, develop supportive evidence, and make formal presentations during formal hearings before the SWRCB. DFG should request assistance from the SWRCB and Regional Boards to collect this information and assist in the development of evidence. DFG should be prepared to follow through with their findings by formally requesting the SWRCB to modify and/or change the terms and

conditions of a specific permit/license for the protection of coho salmon. The Recovery Team requests that SWRCB adopt and enforce permit and license conditions recommended by the Department. Votes: Yes=16; No=0; Abstain=3. Abstain votes from Giacomini, Kautsky, and Kull.

SW XXXIII-A-04 The state agencies with the primary authority for fish and water (DFG, SWRCB) should lead enforcement efforts and coordinate with all local, state, and federal agencies with regulatory authority affecting coho salmon. Votes: Yes=16; No=0; Abstain=3. Abstain votes from Giacomini, Kautsky, and Kull.

SW XXXIII-A-05 The Recovery Team recommends that DFG and the Fish and Game Commission:

a. Direct the SWRCB to make enforcement of unauthorized diversion and use of water and water permit processing a high priority. Enforcement of existing codes including Water Code §§ 1052 Trespass and 1831 et. seq., Cease and Desist; and
b. Recommend to the Governor and the Legislature that adequate funding be provided for enforcement and permit processing staff. Votes: Yes=16; No=0; Abstain=3. Abstain votes from Giacomini, Kautsky, and Kull.

SW XXXIII-A-06 The Statewide Recovery Team supports continued funding for the California District Attorney's Association's Environmental Circuit Prosecutors program and/or Environmental Project for applicable district attorney offices in the range of coho salmon. Votes: Yes=15; No=1; Abstain=2. No vote from Rentz; Abstain votes from Dwight and Kautsky.

SWXXXIII-A-07 The Statewide Coho Recovery Team recommends DFG work with county fish and game commissions, the California District Attorney's Association's Environmental Circuit Prosecutors program and/or Environmental Project, and applicable district attorney offices to dedicate fines from violations affecting coho or coho habitat to coho recovery and restoration activities consistent with DFG's Coho Recovery Strategy, including but not limited to education and outreach. Emphasis should be placed on keeping fine money in watersheds where the violation occurred to address existing coho restoration plans and projects. Votes: Yes=14; No=1; Abstain=4. No vote from Herrera. Abstain votes from Dwight, Giacomini, McKee, and Rentz.

SWXXXIII-A-10 The Statewide Coho Recovery Team recommends DFG develop an outreach/information and education program that targets agency personnel, judges, district attorneys, the Attorney General's Office, municipalities, watershed groups, agricultural groups, developers, and other affected or interested parties concerning the status of coho and the value and importance of coho resources and coho recovery. DFG and other agencies should provide educational materials, outreach and training for issues such as sport fishing (inadvertent incidental take), poaching (directed take) and habitat destruction (LWD removal, riparian destruction, illegal stream crossings, pollution, illegal water withdrawal, etc.). Votes: Yes=18; No=1; Abstain=0. No vote from Rentz.

SWXXXIII-A-11 The Statewide Coho Recovery Team recommends DFG work with cities and counties to discourage illegal dumping, poaching, and other illegal activities by promoting "neighborhood watch" programs for streams and/or watersheds. Votes: Yes=18; No=0; Abstain=1. Abstain vote from Kautsky.

SWXXXIII-A-15 The Recovery Team recommends that a separate section on the Recovery Strategy deal with enforcement of existing laws, codes, and regulations. Votes: Yes=18; No=0; Abstain=1. Abstain vote from Kautsky.

SWXXXIII-A-22 Human and financial resources as well as political will limit the ability to enforce existing laws. Until such time as there are adequate resources to meet all required mandates the responsible local, state and federal agencies will develop and implement their respective prioritized sets of actions to implement existing laws. Votes: Yes=12; No=3; Abstain=4. No votes from Giacomini, Kull, and Rentz. Abstain votes from Poole (Baldridge), Duffy, Dwight, and Lancaster.

SWXXXIII-A-27 The Statewide Coho Recovery Team supports agency environmental task forces made up of state, local, and federal enforcement agencies that operate in the range of coho salmon. Votes: Yes=15; No=0; Abstain=4. Abstain votes from Dwight, Giacomini, Lancaster, and Rentz.

SWXXXIII-A-28 The Statewide Coho Recovery Team supports continued and increased funding for DFG's Cal Tip program. Votes: Yes=18; No=0; Abstain=1. Abstain vote from Kautsky.

Implementation

Consensus Recommendation

SW XXXIV-A-1 Funding and incentives should be provided for any projects that exceed requirements of existing law and/or expedite timelines required by law. All commitments of state and local agencies are subject to availability of funding. Funding and incentives provided by state fishery restoration accounts should be prioritized as follows:

1. Projects that exceed requirements of existing law and/or expedite timelines required by current law.
2. Projects that were installed in accordance with laws and standards in effect at the time the work was done.
3. Projects that contain elements of 1 and 2 above.
4. Projects that do not meet elements of 1 and 2 above, but which are not a part of new development or under enforcement actions.
5. Projects that are mitigation for new development or activities under enforcement actions are not fundable.

Non Consensus Recommendations

There are no non consensus recommendations on Implementation.

Watershed-Specific Recommendations

Watershed-specific recommendations reflect a mix of actions necessary to address the limiting factors to a healthy environment for coho salmon in that watershed.

Big Basin Hydrologic Unit

Consensus Recommendations

BBHU-1 Continue to operate the MBSTP King Fisher Flat hatchery under the guidance of NOAA Fisheries and DFG as a conservation hatchery to reintroduce missing, or supplement very weak brood years. Support the funding to develop and implement a management plan. Operate the facility to accommodate recovery.

BBHU-2 Provide education and training on coho-friendly water diversion practices to facilitate compliance with pertinent regulation (e.g., Fish and Game Code 1600 et. seq., CFPR 916.9, California Water Code, DFG – NOAA Fisheries guidelines).

BBHU-3 Increase LWD recruitment and retention by modification of infrastructure where feasible (e.g., culverts, bridges, out-buildings, levees) to reduce the threat of damage to structures attributable to substantial accumulation of LWD. To provide fish passage, encourage funding authorities to allocate adequate resources to prioritize and upgrade culverts within the range of coho salmon to pass 100-year flows and the expected debris loads (e.g., LWD that might be mobilized).

BBHU-4 Develop, facilitate, and support by-pass stream-flow requirements on all coho streams. Evaluate existing structures and apply to all future structures.

BBHU-5 Implement the highest priority restoration projects in the watershed plans and implement coho related recommendations within the plans. Adjust on-going efforts based on results.

BBHU-6 Complete a broad conjunctive-use feasibility study to focus on creative ways to better manage existing surface and groundwater resources in Santa Cruz County, including all cities and water districts, to better utilize groundwater storage and increase base flow at critical times. This would involve water sources under the control of Scotts Valley Water District, City of Santa Cruz, Soquel Water District, and San Lorenzo Water District.

BBHU-7 Develop a Lagoon Management Plan that addresses the needs of coho.

Davenport Hydrological Sub Area

DavHSA-3 Improve the form and function of riparian vegetation in alluvial reaches by implementing established BMPs designed to reduce bank erosion, reduce water

temperature, and reduce removal of LWD. These BMPs include, but are not limited to, livestock exclusion fencing, reclamation or reconstruction of floodplain, and active re-vegetation. Applies especially to Scott Creek.

DavHSA-4 Reduce erosion of soil and resulting sedimentation of in-stream habitat attributable to roads. Implement established BMPs, accounting for public safety standards, including, but not limited to, assessment procedures and a suite of road reconstruction prescriptions. Applies especially to Scott Creek.

DavHSA-5 Encourage State Parks to develop a log jam management plan for Waddell Creek. Log jams should be closely examined for fish passage and conservatively modified if absolutely necessary for coho passage.

San Lorenzo River Hydrological Sub Area

SLHSA-1 Reduce erosion of soil and resulting sedimentation of in-stream habitat attributable to roads. Implement adopted BMPs, accounting for public safety standards, including, but not limited to, assessment procedures and a suite of road reconstruction prescriptions. Applies especially to San Lorenzo River.

SLHSA-3 Evaluate the Felton Diversion Dam for impacts to coho.

SLHSA-4 Improve adult fish passage at locations named in the San Lorenzo River Enchancement Plan, the Santa Cruz Road Crossing and Salmonid Passage Assessment (Taylor, 2003) and other locations identified by DFG as being problematic. Implement the portions of these plans that are consistent with the recommendations of the Recovery Team and the Coho Salmon Recovery Strategy. The plans were prepared by Santa Cruz County under the terms of a CDFG-funded grant agreement.

Aptos-Soquel Hydrologic Sub Area

SoqHSA-1 Implement elements of the Soquel Creek Watershed Restoration Plan consistent with the recommendations of the Recovery Team and the Coho Recovery Strategy. Specifically focus on projects recommended as high-priority in this coho-centric plan funded by CDFG and the Coastal Conservancy, and coordinated by Santa Cruz County Resource Conservation District. These projects include best management practices to reduce sedimentation of in stream habitat, preservation of base flow, restoration of flood plain and improvements to fish passage.

SoqHSA-2 Explore and promote opportunities to assure diversion of stream flow (directly or indirectly) is consistent with perpetuation of Soquel Creek coho salmon. Among others, these opportunities include amendments to the adjudication, water conservation, shallow recharge opportunities, shallow-well gauging, deep-well gauging, stream-gauging, and self-monitoring of diversions. A recommended way to accomplish this is through a watershed council or CRIMP.

Non Consensus Recommendations

DavHSA-1 Recommend that DFG work with the SWRCB to develop and enforce stream flow bypass requirements for diversions from the alluvial reaches of mainstem Scott Creek, Big Creek, Mill Creek, and San Vicente Creek. Votes: Yes=16; No=1; Abstain=2. No vote from Giacomini. Abstain votes from Dwight and Rentz.

DavHSA-2 Recommend that DFG petition the SWRCB to declare Scott Creek and San Vicente Creek fully appropriated during summer and fall months. Votes: Yes=17; No=1; Abstain=1. No vote from Giacomini. Abstain vote from Dwight.

SLHSA-2 Recommend that the SWRCB work with DFG to develop and enforce stream flow bypass requirements for diversions from the alluvial reaches of the San Lorenzo River and its tributaries Zayante Creek, Fall Creek, Bear Creek, Boulder Creek, and Branciforte Creek. Votes: Yes=16; No=1; Abstain=2. No from Giacomini. Abstain votes from Dwight and Rentz.

Bodega/Marin Coastal Hydrological Unit

Consensus Recommendations

BMCHU-1 Implement best magement pactices for road projects. Support Sonoma and Marin County Departments of Public Works, Caltrans, and other appropriate agencies to implement and maintain environmentally sound upgrades, modifications, and new construction of road projects, including culverts and stream crossings.

BMCHU-2a Continue to implement erosion control projects that were assessed and inventoried in sediment assessment plans completed thoughout watersheds of the HU.

BMCHU-2b Monitor the effectiveness and maintenance of watershed restoration projects (e.g., Sonoma County Coastal Wetland Enhancement Plan; Walker Creek Watershed Enhancement Plan; San Geronimo Creek Watershed Sediment Source Sites Assessment and Evaluation; Lagunitas Creek Final Sediment and Riparian Management Plan; and Watershed Assessment and Erosion Prevention Planning Project for the Redwood Creek Watershed.

BMCHU-3 To avoid and minimize the adverse effects of water diversion on coho salmon, improve the coordination between State Water Resources Control Board (SWRCB), DFG, and other agencies, to promote flows that will provide for a natural hydrograph and to address protective conditions, such as by-pass flows, season of diversion, and off-stream storage.

BMCHU-4 Encourage local governments to incorporate protection of coho in flood management activities.

BMCHU-5 Encourage counties to implement performance standards in Stormwater Management Plans.

BMCHU-6 On private and public lands, address issues of low flow by increasing riparian protection and restoration, increasing sediment control, and employing best management practices that encourage permeability and infiltration.

BMCHU-7 Continue outreach, education, and enforcement related to household hazardous waste and hazardous materials spills in creeks.

BMCHU-8 Encourage the cultivation and availability of locally indigenous native plants for use in restoration and bank stabilization.

BMCHU-9 Investigate opportunities for restoring historic coho runs in identified watersheds.

BMCHU-10 Continue to support landowners and the Marin RCD to restore riparian zones and manage livestock to increase stream protection and soil retention. Encourage sustainable land management practices and control of sediment sources in agricultural zones.

BMCHU-11 Continue to support the many active watershed groups in the HU, encouraging a focus on coho salmon restoration where appropriate.

BMCHU-12 Implement fish passage improvements as identified in inventories conducted by SPAWN, Taylor and Associates, Trout Unlimited and the National Park Service. Expand inventories as needed to approach comprehensive fish passage.

BMCHU-13 County planning, public works, open space, and fire departments should continue to implement FishNet4C priority goals for this region, which include: 1) enact and enforce Marin County Streamside Conservation Area Ordinance, 2) adopt and implement FishNet Road Maintenance Manual: Guidelines for Protecting Aquatic Habitat and Salmon Fisheries for County Operations and Maintenance, 3) systematically work to restore fish passage at county facilities, and 4) address issues of sediment from roads through restoration and education.

Salmon Creek Hydrological Sub Area

SCHSA-1 Coordinate efforts of involved agencies in review of plans for timber harvest and vineyard conversion. Support appropriate entities in development and implementation of standards and best management practices for agriculture to reduce pathogen, nutrient, and sediment loadings to creeks.

SCHSA-2 Continue to implement erosion control projects that were assessed and inventoried in sediment assessment plans, and monitor effectiveness and maintenance of past and current watershed restoration projects. Augment surveys as necessary.

SCHSA-3 Continue to fund and support landowners to restore riparian zones and manage livestock to increase stream protection and soil retention. Encourage sustainable land management practices and control sediment sources in agricultural zones.

SCHSA-4 Implement recommendations of watershed plans consistent with the Coho Salmon Recovery Strategy.

SCHSA-5 Encourage vineyard operations to be designed to ensure adequate protection of coho habitat attributes, including riparian corridors, in-stream flow, and water quality.

Walker Creek Hydrological Sub Area

WalkerCHSA-1 Continue to fund and support landowners and the Marin RDC to restore riparian zones and manage livestock to increase stream protection and soil retention. Address water quality and nutrient loading issues by encouraging sustainable land management practices, controlling sediment sources, protecting riparian zones and employing best management practices that encourage permeability and infiltration.

WalkerCHSA-2 Continue to support active watershed groups in the HSA, encouraging a focus on coho salmon restoration where appropriate.

WalkerCHSA-3 Assess the water temperature regime during the summer season for three to five years to determine the role of water temperature as a limiting factor for coho salmon production.

WalkerCHSA-4 Support landowners and the Marin RCD in projects to improve channel conditions and restore natural channel geomorphology, including side channels and dense contiguous riparian vegetation.

WalkerCHSA-5 Implement high priority fishery enhancement projects for the reduction of sediment delivery and the restoration of riparian corridors as listed in the Walker Creek Enhancement Plan (2001).

WalkerCHSA-6 Look for opportunities to increase woody debris retention and recruitment.

WalkerCHSA-7 Encourage Marin Municipal Water District to continue to assess the release of water from Soulejule Reservoir to develop the optimum release for coho salmon.

Lagunitas Creek Hydrological Sub Area

LagHSA-1 Use recommendations of existing sediment source surveys to implement projects to restore habitat of coho salmon. Augment surveys as necessary.

LagHSA-3 Coordinate with appropriate agencies to restore coho salmon passage at barriers identified by Ross Taylor, SPAWN, and others. Complete any needed surveys of migration barriers. Expand inventories as needed to approach comprehensive fish passage.

LagHSA-4 Investigate opportunities for restoring runs in historic coho salmon watersheds.

LagHSA-5 Encourage MMWD to commit ongoing resources and support of stewardship in the basin beyond the 10-year mitigation order that expires in 2007 to include: riparian enhancement and protection, sediment source reduction, habitat typing and surveying, coho salmon surveys and counts, water conservation, outreach and education, effectiveness monitoring of projects, planning and assessment of potential restoration projects to benefit coho.

LagHSA-6 Provide incentives for septic inspection, repair, and replacement to reduce aquatic pollution.

LagHSA-7 Assess, evaluate, and implement restoration actions in Nicasio Creek to improve water quality.

LagHSA-8 Develop a monitoring and assessment program for the estuarine reaches of Lagunitas Creek, looking at impacts to coho rearing and outmigration.

LagHSA-11 Throughout the Lagunitas drainage, work with private landowners to encourage biotechnical bank stabilization, riparian protections, woody debris retention, and timing of water withdrawals to help protect fisheries.

LagHSA-12 In the San Geronimo sub-watershed, continue public outreach and education for private landowners, residents, commercial, public utility and county workers regarding best management practices to control erosion, protect riparian vegetation, retain woody debris, and minimize disturbance to coho salmon from pets.

LagHSA-14 In the San Geronimo sub-watershed, Marin County should determine a policy for reviewing new development projects and impacts to the creek from new well construction. The County should consider adopting recommendations for well developments from the Local Coastal Plan.

LagHSA-15 Encourage the National Park Service to continue practices to benefit coho salmon, including sediment control projects, locating well constructed fences out of riparian zones, repairing headcut gullies as possible, and implementing rotational grazing in locations to minimize erosion and impacts to the creek.

LagHSA-16 Encourage Marin Municipal Water District and the County of Marin to continue to implement and coordinate their Watershed Protection Agreement Program for additional water hook-ups in Nicasio and San Geronimo sub watersheds.

LagHSA-17 Look for opportunities to restore natural channel form and function in the upper watershed to protect summer flows into San Geronimo Creek.

Bolinas (Redwood Creek) Hydrological Sub Area

BolHSA-1 Implement recommendations of completed sediment source surveys. Supplement surveys as necessary.

BolHSA-2 Continue to support restoration efforts on Bolinas Lagoon and Big Lagoon to benefit coho salmon during all life phases and seasons.

BolHSA-3 Work with landowners and appropriate agencies to manage low summer flows for coho salmon, on a watershed basis. Provide support and incentives to protect both fisheries flows and agriculture, including timing of withdrawals, construction of off-site storage facilities, water conservation practices and riparian zone protections. Conduct outreach and education for landowners on these practices.

BolHSA-4 Look for opportunities to increase woody debris recruitment and retention.

BolHSA-5 Provide incentives for septic inspection, repair and replacement to improve water quality in both streams and lagoons.

BolHSA-6 Encourage the National Park Service to provide additional space for Stinson Beach Water District for off-stream storage to protect coho in Easkoot Creek.

BolHSA-8 Identify and resolve problems related to trails in these watersheds, including location of trails and access road and trail construction and maintenance.

Non Consensus Recommendations

There are no non-consensus recommendations for the Bodega-Marin Hydrological Unit.

Cape Mendocino Hydrologic Unit

Consensus Recommendation

CMHU-1 Encourage placement of LWD in stream channels to improve channel structure and function.

Non Consensus Recommendations

There are no non consensus recommendations for the Cape Mendocino HU.

Mattole River Hydrological Sub Area- Southern Sub Basin

Consensus Recommendations

MRSS-1 Encourage elimination of unnecessary and wasteful use of water to improve stream surface flows and coho habitat through outreach and education of water and conservation practices. Include in the outreach and education sections of the recovery plan.

MRSS-3 DFG, RWQCB, landowners, and others work cooperatively to establish monitoring stations at appropriate locations to monitor in-channel sediment (or turbidity) both in the lower basin and in the lower reaches of major tributaries.

MRSS-6 Follow the NCRWQCB suggested BMPs to protect water quality from the ground application of pesticides.

MRSS-9 Request that Mendocino County investigate promoting cluster development away from streams to protect coho salmon.

MRSS-10 Provide incentives to landowners to protect habitat and reduce water use.

MRSS-11 Develop educational materials for landowners explaining how they can protect coho salmon.

MRSS-15 Encourage the planting of trees in riparian areas where the conditions are suitable.

Mattole River Hydrological Sub Area – Western Sub Basin

MRWS-4 Encourage the monitoring of summer water and air temperatures using DFG-accepted protocols. Continue temperature monitoring efforts in Stansberry, Mill (RM2.8) Clear, Squaw, Woods, Honeydew Bear, North Fork Bear, South Fork Bear, Little Finley, Big Finley, and Nooning Creeks, and expand efforts into other sub-basin tributaries.

MRWS-6 Encourage the assessment of riparian habitat, prioritization, and reclamation and enhancement of riparian habitat.

MRWS-7 Recognize and support on-going efforts of landowners, BLM, and others to improve habitat conditions for coho salmon.

MRWS-8 Recommend coordinated, expedited processing of SRWQCB and 1600 permits for projects that are intended to reduce summer diversions.

MRWS-9 Conduct a public education program to raise awareness of the habitat needs of coho salmon and how the community, especially landowners, can improve coho habitat.

MRWS-10 Develop incentives for landowners and communities to reduce summer water withdrawals and enhance habitat.

MRWS-11 Develop programs to support existing land-use patterns and discourage conversions and subdivisions.

Non Consensus Recommendation

MRSS-14 Pursue opportunities to acquire fee title, easement, and water rights from willing sellers. Votes: Yes=17; No=1; Abstain=1. No vote from Giacomini. Abstain vote from Dwight.

Eel River Hydrologic Unit

Consensus Recommendations

ERHU-1 Support the existing watershed cooperative working groups and the formation of new groups where necessary.

ERHU-4 Support the assessment, prioritization, and treatment of sediment sources.

ERHU-8 Develop a plan to restore an adequate migration corridor in the mainstem Eel River.

Ferndale Hydrologic Sub Area

FHSA-1 Encourage the Salt River Local Implementation Plan to incorporate coho-friendly measures, in cooperation with the agencies. For the Salt River Local Implementation Plan to be effective, assessment prioritization and treatment of sediment sources in the watershed must be completed.

South Fork Eel River Hydrologic Area

SFHA-1 Explore opportunities to acquire conservation easements with conditions that provide for benefits to fisheries resources.

Weott Hydrologic Sub Area

WHSA-1 Support the Department of Parks and Recreation efforts to complete the storm proofing of the Bull Creek watershed.

WHSA-2 Support the Department of Parks and Recreation and private property owners planting of trees and implement other habitat enhancement as necessary in the Bull Creek and Salmon Creek watersheds.

WHSA-3 Request that Caltrans assess, prioritize, and treat culverts that are barriers to passage along Avenue of the Giants and US 101.

Benbow Hydrologic Sub Area

BHSA-1 Support an assessment of the entire watershed.

BHSA-4 Request that CDF monitor Non-industrial Timber Management Plans to ensure that they are properly implemented.

Laytonville Hydrologic Sub Area

LHSA-1 Support continued watershed restoration efforts, including measures to reduce temperatures in Ten-Mile Creek.

LHSA-2 Support efforts to prioritize and treat culverts on county roads that are barriers.

LHSA-3 Encourage the county to coordinate with landowners on the removal of barriers on private property.

LHSA-4 Support efforts by the Sheriff to enforce laws against dumping and the Department of Health to clean up dumped materials.

LHSA-6 Encourage cities, counties and Caltrans to adopt maintenance manuals that protect coho habitat (e.g, standards for sidecasting of spoils and identification of spoils disposal sites).

Outlet Creek Hydrologic Sub Area

OCHSA-1 Prepare a technical assessment of Outlet Creek watershed: develop recommendations to restore long-term function and prioritize implementation.

OCHSA-2 Encourage the City of Willits to become involved in planning for coho recovery and to :

a. Assess, prioritize, and treat barriers to passage;
b. Address water quality issues;
c. Modify facility maintenance practices as necessary; and
d. Evaluate land use planning and revise plans as appropriate.

Non Consensus Recommendations

Scotia Hydrologic Sub Area

SHSA-2 Evaluate the benefits to coho salmon of removing the barrier on Bridge Creek. Votes: Yes=18; No=1; Abstain=0. No vote cast by Lancaster.

Explanation of no vote offered by Lancaster, "I am uncomfortable with DFG targeting a few individual projects when there are hundreds that have been inventoried. There are many priority projects and implementation should be based on criteria such as relation to other projects in the watershed, costs, landowner participation, habitat benefits, etc. The Counties have already inventoried and prioritized 208 county road barriers, with 30 implement to date. Whether Bridge and Warren Creeks are a high priority should be based on the population of barriers, costs and benefits and prioritization criteria."

Eureka Plain Hydrologic Unit

Consensus Recommendations

EPHU-3 In cooperation with agencies and landowners, develop a plan to reestablish estuarine function.

EPHU-4 Acknowledge the Arcata City Sewage Treatment Project and encourage implementation of similar projects elsewhere.

EPHU-5 Assess sources of sediment input, prioritize and implement remediation projects.

Non Consensus Recommendations

There are no non consensus recommendations on the Eureka Plain HU.

Klamath River Hydrologic Unit

Consensus Recommendations

KRHU-2 Facilitate development of an adaptive management plan in preparation for low flow emergencies in cooperation with Bureau of Reclamation, NOAA Fisheries, USFWS, DOI, tribes, SWQCB and other stakeholders.

KRHU-3 Develop a plan to restore and maintain tributary and mainstem habitat connectivity where low flow or sediment aggradation is restricting fish passage.

KRHU-6 Recommend that the Bureau of Reclamation implement the Trinity River TMDL in-stream flushing flows without affecting Record of Decision allocations.

KRHU-8 Complete other comprehensive flow study activities that will enable water managers to understand the impacts of their actions to coho salmon.

KRHU-9 Apply protective down-ramp rates at Iron Gate Dam to minimize stranding of coho fry.

KRHU-10 Improve water quality coming into the Klamath River mainstem from the Upper Klamath Basin by supporting efforts to improve water quality in the upper basin.

KRHU-13 Ensure that uplands in key cold water tributaries are managed in such a way to preserve their cold water thermal regime.

KRHU-17 Continue disease monitoring on Klamath River mainstem juvenile salmon outmigration so that major disease outbreaks can be identified and their causes evaluated.

KRHU-21 Step up roads and fuels management, especially in tributaries with potential to contribute catastrophic loads of sediment to the mainstem Klamath.

Klamath Glen Hydrologic Sub Area

KGHSA-1 Support the continuation of long-term estuary investigations to better understand the estuary's role in the survival of Klamath Basin coho salmon.

KGHSA-2 Develop a plan to restore off-channel estuarine, wetland, and slough habitat in lower Hunter and Salt Creeks:

a. Investigate the purchase of key properties, conservation easements, or development rights from willing sellers and
b. Encourage the installation of livestock exclusion fencing to protect restored areas.

KGHSA-3 Develop a plan to maintain Blue Creek watershed tributaries as key thermal refugia and for their cool water contributions to the mainstem Klamath River.

a. Ensure that sediments from upslope activities do not impact the refugia;
b. Continue upslope stabilization and restoration activities including road assessment and treatment;
c. Continue in-channel and riparian restoration efforts; target riparian retention efforts; and
d. Remove feral cattle.

KGHSA-4 Plan for the protection and restoration of other Klamath mainstem tributaries, even those that do not support populations of coho but that provide cool water and which improve mainstem Klamath water quality, particularly during warm summer months. Actions should:

a. Protect and/or restore riparian habitat;
b. Stabilize upslope areas to prevent sedimentation and aggradation of tributaries at their mouths; and
c. Improve federal land management to reduce impacts to riparian corridors and sediment loads.

KGHSA-5 Support actions to reduce sediment input from upslope sources, such as:
a. Decommission roads and skidtrails;
b. Upgrade roads and maintenance practices;
c. Ensure adequate fish migration is provided for at-stream/road crossings;
d. Stabilize slopes to minimize or prevent erosion and to minimize future risk of eroded material entering streams; and
e. Minimize alteration of natural hillslope drainage patterns.

KGHSA-7 Support treating sediment sources and improving riparian and in-stream habitat conditions to provide adequate and stable spawning and rearing areas for coho salmon.

KGHSA-8 Develop a plan to restore in-channel and riparian habitat in tributaries:
a. Revegetate riparian zones with native species (i.e., conifers) to stabilize streambanks and promote a long-term supply of LWD;
b. Provide adequate protection from development, grazing, etc. for riparian areas; and
c. Relocate roads out of riparian areas where feasible.

KGHSA-9 Develop a plan to provide suitable accumulations of woody cover in slow-velocity habitats for coho salmon winter rearing on a short-term basis by placing wood in needed areas until natural supplies become available.

KGHSA-12 Express appreciation for the outstanding cooperation between The Yurok Tribe and Simpson Resources Company.

KGHSA-13 Supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD in the lower Klamath tributaries through:
a. LWD placement;
b. Management to promote conifer recruitment;
c. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
d. Incentives to landowners, such as funding and technical support.

<u>Orleans Hydrologic Sub Area</u>

OHSA-2 Support activities to maintain connectivity (flow) between mainstem habitat and tributary habitat in Slate and Red Cap Creeks.

OHSA-3 Develop a plan to protect and enhance spawning and rearing habitats in Boise and Camp Creeks.

OHSA-4 Develop a plan to protect and enhance Bluff and Red Cap Creek watersheds classified as Key Watersheds in the Northwest Forest Plan. Key watersheds serve as refugia for maintaining and recovering habitat for stocks of anadromous fish at risk such as coho salmon.

OHSA-7 Support actions to reduce sediment input from upslope sources, including measures to:

a. Decommission roads and skidtrails;
b. Upgrade roads and maintenance practices;
c. Ensure adequate fish migration is provided for at stream/road crossings;
d. Stabilize slopes to minimize or prevent erosion and to minimize future risk of eroded material entering streams; and
e. Minimize alteration of natural hillslope drainage patterns.

Ukonom Hydrologic Sub Area

UHSA-2 Support actions to reduce sediment input from upslope sources, including measures to:

a. Decommission roads and skidtrails;
b. Upgrade roads and maintenance practices;
c. Ensure adequate fish migration is provided for at stream/road crossings;
d. Stabilize slopes to minimize or prevent erosion and to minimize future risk of eroded material entering streams; and
e. Minimize alteration of natural hillslope drainage patterns.

UHSA-3 Develop a plan to restore and maintain tributary and mainstem habitat connectivity where low flow or sediment aggradation is restricting fish passage. Implement highest priority barrier repairs as identified in the Caltrans inventory. USFS and the Karuk Tribe have identified culverts on Highway 96 at Stanshaw, Sandy Bar, and Coon Creeks as needing treatment.

UHSA-4 Develop a plan to ensure continued yields of high quality water and maintain the ecological function of tributary riparian systems, including measures to:

a. Conduct riparian revegetation and streambank restoration;
b. Encourage, where feasible, the relocation of roads out of riparian areas and off of unstable land features (e.g., active landslides, granitic terrain, toe zones, wet-seepy areas);
c. Increase the number of conifers and deciduous trees, where appropriate, for more stable stream banks, stream shading, and eventual recruitment of LWD; and
d. Revegetate floodplain areas using native species.

UHSA-5 Supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD in the Ukonom HSA through:

a. LWD placement;
b. Management to promote conifer recruitment;
c. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
d. Incentives to landowners, such as funding and technical support.

UHSA-8 Encourage installation of screens on diversions to DFG-NOAA Fisheries standards. Provide funding incentives to landowners where necessary to achieve this goal.

UHSA-9 Increase efficiency of water diversions and delivery systems where feasible and appropriate. Provide funding and incentives to landowners where necessary to meet this goal.

UHSA-10 Continue restoration and monitoring of Siskon Mine to prevent further degradation of the riparian resource.

Happy Camp Hydrologic Sub Area

HCHSA-2 Support actions to reduce sediment input from upslope sources, including measures to:

a. Decommission roads and skidtrails;
b. Upgrade roads and maintenance practices;
c. Ensure adequate fish migration is provided for at stream/road crossings;
d. Stabilize slopes to minimize or prevent erosion and to minimize future risk of eroded material entering streams; and
e. Minimize alteration of natural hillslope drainage patterns.

HCHSA-4 Develop a plan to ensure continued yields of high quality water and maintain the ecological function of tributary riparian systems, including measures to:

e. Conduct riparian revegetation and streambank restoration;
f. Encourage, where feasible, the relocation of roads out of riparian areas and off of unstable land features (e.g., active landslides, granitic terrain, toe zones, wet-seepy areas);
g. Increase the number of conifers and deciduous trees, where appropriate, for more stable stream banks, stream shading, and eventual recruitment of LWD; and
h. Revegetate floodplain areas using native species.

HCHSA-5 Supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD in the Happy Camp HSA through:

a. LWD placement;
b. Management to promote conifer recruitment;

c. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
d. Incentives to landowners, such as funding and technical support.

HCHSA-8 Encourage installation of screens on diversions to DFG-NOAA Fisheries standards. Provide funding incentives to landowners where necessary to achieve this goal.

HCHSA-9 Increase efficiency of water diversions and delivery systems where feasible and appropriate. Provide funding and incentives to landowners where necessary to meet this goal.

HCHSA-10 Encourage the North Coast RWQCB to continue monitoring Grey Eagle Mine and tailings as a follow-up to remediation that has already been done. Urge EPA Region 9 to consider coho when dealing with both emergency and remedial actions.

Sciad Valley Hydrologic Sub Area

SVHSA-2 Support actions to reduce sediment input from upslope sources, including measures to:
a. Decommission roads and skidtrails;
b. Upgrade roads and maintenance practices;
c. Ensure adequate fish migration is provided for at stream/road crossings;
d. Stabilize slopes to minimize or prevent erosion and to minimize future risk of eroded material entering streams; and
e. Minimize alteration of natural hillslope drainage patterns.

SVHSA-3 Support efforts to improve fish passage at stream and road crossings, including measures to:
a. Replace culverts on both USFS and Caltrans roads with structures allowing fish passage;
b. Treat fish passage problems associated with the USFS roads;
c. Replace undersized culverts that will not pass 100-year storm runoff; and
d. Encourage USFS, county and state agencies to provide adequate budgets basin-wide for road maintenance and upgrades.

SVHSA-4 Develop a plan to ensure continued yields of high quality water and maintain the ecological function of tributary riparian systems, including measures to:
a. Conduct riparian revegetation and streambank restoration;
b. Encourage, where feasible, the relocation of roads out of riparian areas and off of unstable land features (e.g., active landslides, granitic terrain, toe zones, wet-seepy areas);
c. Increase the number of conifers and deciduous trees, where appropriate, for more stable stream banks, stream shading, and eventual recruitment of LWD; and
d. Revegetate floodplain areas using native species.

SVHSA-5 Supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD in the Sciad Valley HSA through:

e. LWD placement;
f. Management to promote conifer recruitment;
g. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
h. Incentives to landowners, such as funding and technical support.

SVHSA-8 Encourage installation of screens on diversions to DFG-NOAA Fisheries standards. Provide funding incentives to landowners where necessary to achieve this goal.

SVHSA-9 Study the likely benefits to instream flow of increasing the efficiency of water diversions and delivery systems where feasible and appropriate. Provide funding and incentives to landowners where necessary to meet actions that are given a high priority.

Beaver Creek Hydrologic Sub Area

BCHSA-2 Encourage landowners to manage fuels to prevent catastrophic fires and to evaluate the application of the Watershed Evaluation Mitigation Addendum.

BCHSA-4 Hydrologically disconnect the USFS Beaver Creek road north of West Beaver Creek.

BCHSA-5 Support actions to reduce sediment from upslope sources such as:

a. Decommission roads and skidtrails;
b. Upgrade roads and maintenance practices;
c. Ensure adequate fish migration is provided for at stream/road crossings;
d. Stabilize slopes to minimize or prevent erosion and to minimize future risk of eroded material entering streams;
e. Minimize alteration of natural hillslope drainage patterns; and
f. Encourage, where feasible, the relocation of roads out of riparian areas and off of unstable land features (e.g., active landslides, granitic terrain, toe zones, wet-seepy areas).

Non Consensus Recommendations

KRHU-15 Address water quality and quantity problems in the Shasta and Scott Rivers, as well as any other Klamath tributaries that are exacerbating the mainstem water quality problems. Votes: Yes=14; No=4; Abstain=1. No votes from: Dwight, Giacomini, Herrera, Rentz. Abstain vote from Lancaster.

KRHU-15 Alternate language supported by Dwight, Giacomini, Lancaster, Parker, and Rentz: Address water quality and water quantity problems in any Klamath tributaries that may affect mainstem water quality.

KRHU-20 Restore appropriate coarse sediment transport near Iron Gate Dam. Means to achieve this could include full or partial project removal, or gravel introduction such as is done below other major dams such as Trinity Dam. Votes: Yes=13; No=4; Abstain=2. No votes from: Dwight, Giacomini, Herrera, Rentz. Abstain votes from Dwight and Lancaster.

KRHU-20 Alternate language supported by Dwight, Giacomini, and Rentz: Restore appropriate coarse sediment transport near Iron Gate Dam.

Orleans Hydrological Sub Area

OHSA-1 Develop a plan to protect and restore tributaries, even those that do not support populations of coho salmon that provide cool water and which improve mainstem Klamath water quality and which provide thermal refugia for fish, particularly during warm summer months. The plan should:

a. Include improved land management to reduce impacts to riparian corridors, reduce sediment loads, and protect water resources;
b. DFG request that the SWRCB review existing water appropriations for compliance;
c. DFG petition the SWRCB to designate streams with critical summer flows as fully appropriated streams during the appropriate period; and
d. Provide measures that reduce hydrologic connectivity between streams and roads where feasible. Votes: Yes=16; No=0; Abstain=3. Abstain votes from Dwight, Giacomini, and Rentz.

Happy Camp Hydrological Sub Area

HCHSA-1 Develop a plan to protect and restore tributaries, even those that do not support populations of coho salmon that provide cool water and which improve mainstem Klamath water quality and which provide thermal refugia for fish, particularly during warm summer months. The plan should:

a. Include improved land management to reduce impacts to riparian corridors, reduce sediment loads, and protect water resources;
b. DFG request that the SWRCB review existing water appropriations for compliance;
c. DFG petition the SWRCB to designate streams with critical summer flows as fully appropriated streams during the appropriate period; and
d. Provide measures that reduce hydrologic connectivity between streams and roads where feasible. Votes: Yes=16; No=0; Abstain=3. Abstain votes from Dwight, Giacomini, and Rentz.

Beaver Creek Hydrological Sub Area

The following recommendation, originally offered by DFG staff, did not receive a simple majority of votes cast and therefore is not recommended. It is included here in order to include an explanation.

BCHSA-3 Pave USFS road adjacent to the West Fork of Beaver Creek to minimize fine sediment production and delivery. Votes: Yes=8, No=2; Abstain=8. No votes from Lancaster and Rentz. Abstain votes from Bell, Giacomini, Helliwell, Herrera, McKee, Millet, Parker, and Weseloh.

Explanation of no vote offered by Lancaster: "I am uncomfortable targeting a few individual projects. Paving to reduce sediment is rarely economical. Significantly more sediment can be treated by modification of drainage, alternative surfacing and other possible treatments when compared to paving as a tool for sediment reduction."

Mad River Hydrologic Area

Consensus Recommendations

MadRHU-1 Work with landowners and other appropriate entities to reduce coho tributary stream temperature through the development of mature coniferous streamside overstory within the riparian zone by continuing:

a. Planting programs in stream corridors barren of mature conifers;
b. Timber Harvest Plan review; and
c. Riparian management projects with cattle ranchers.

MadRHU-2 Recommend that the SWRCB make a high priority the review of authorized diversions that have no provisions to protect coho. Recommend that the SWRCB make a high priority the identification of unauthorized diversions and enforcement actions to stop them in this HU.

MadRHU-3 Work with landowners and other appropriate entities to improve the quality and quantity of deep pools, spawning gravels, and cover by measures to:

a. Protect existing LWD recruitment potential through the retention of mature coniferous trees in the riparian zone;
b. Establish adequate streamside buffer areas that are protected from vegetation removal;
c. Increase the amount of in-channel LWD;
d. Continue to review Timber Harvest Plans; and
e. Continue riparian management projects with ranchers.

Mad RHU-4 Require the implementation of pre-project geological surveys where needed. Develop permit conditions to limit activities within unstable areas and identify mitigation measures for restoration and enhancement.

MadRHU-5 Counties and incorporated areas should adopt measures to protect riparian vegetation for all development over which they have jurisdiction.

MadRHU-8 Develop a plan to restore and maintain tributary and mainstem habitat connectivity where low flow or sediment aggradation is restricting fish passage. This is a known problem at Canon Creek, Dry Creek, and North Fork Mad River.

MadRHU-9 Consider the mouths of Canon Creek, Dry Creek, and North Fork Mad River as locations for a pilot project to:

a. Identify causes of loss of connectivity and implement the identified strategy and
b. Evaluate management techniques and address permitting complexity for identified measures.

MadRHU-10 Continue stream management activities with landowners in Lower Lindsay Creek.

MadRHU-11 Develop programs to control exotic vegetation, especially canary grass.

MadRHU-12 Evaluate three years' data from the study on the Mad River Hatchery to determine the impact of the hatchery on steelhead production on coho salmon.

<u>Blue Lake and North Fork Mad Hydrologic Sub Areas</u>

BLHA-1 Encourage landowners, municipalities, and tribal interests to work together to develop a watershed restoration plan.

BLHA-2 Encourage agencies and land managers to work with qualified watershed groups:

a. Develop and support well informed watershed communities with regards to coho habitat issues.
b. Ensure that there are adequate incentives for landowners who participate in activities to protect and/or restore coho habitat and watershed processes.
c. Implement an outreach program regarding issues of parity and obligations of stakeholder groups.
d. Make these HSAs high priority areas for implementing these statewide measures.

Non Consensus Recommendations

MadRHU-7 Assess barriers to passage. Prioritize barriers for removal. Develop a plan to treat the barriers, with Warren Creek given a high priority for treatment. Votes: Yes=17; No=1; Abstain=1. No vote from Lancaster. Abstain vote from Giacomini.

Explanation of no vote offered by Lancaster, "I am uncomfortable with DFG targeting a few individual projects when there are hundreds that have been inventoried. There are many priority projects and implementation should be based on criteria such as relation to other projects in the watershed, costs, landowner participation, habitat benefits, etc. The Counties have already inventoried and prioritized 208 county road barriers, with 30 implement to date. Whether Bridge and Warren Creeks are a high priority should be based on the population of barriers, costs and benefits and prioritization criteria."

Mendocino Coast Hydrological Unit

Consensus Recommendations

MCHU-6 Increase stream complexity by actions to:

a. Retain current limited supply of LWD, boulders, and other structure-providing features;
b. Install new LWD, boulders, and other features immediately; and
c. Restore riparian vegetation to provide for future recruitment of LWD.

MCHU-7 Support the assessment, prioritization, and treatment of sediment sources at the HSA level.

MCHU-8 Determine site-specific recommendations, including incentives to remedy high temperatures. Depending on the terrain and aspect, this could include riparian planting to increase shade to reduce high ambient temperature and raise humidity along streams.

MCHU-9 Map unstable soils and use that information to guide land-use decisions, road design, THP, and other activities that can promote erosion.

MCHU-10 Provide education and training on water diversion practices and facilitate compliance with pertinent regulations (e.g., Fish and Game Code 1600 et. seq., CFPR 916.9, California water rights law).

MCHU-11 Improve pool frequency and depth by actions to:

a. Increase scale and efficiency of LWD improvement efforts;
b. Continue to treat existing upslope sediment sources;
c. Avoid creating new sources (e.g., road crossings); and

d. Avoid or minimize land ownership fragmentation/conversion to more intensive uses.

MCHU-12 Discourage poaching by measures to:

a. Cooperate with and provide incentives to landowners to maintain road and trail closures to be effective against trespass;
b. Encourage monitoring of road closures and timely repair of defective or damaged road closure systems;
c. Promote Cal Tip, especially how it might apply to spawning coho salmon; and
d. Report un-permitted road use to local, state, and federal enforcement personnel during periods when coho salmon are running.

MCHU-14 Supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD and shade through:

a. LWD placement;
b. Management to promote conifer recruitment;
c. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
d. Incentives to landowners, such as technical support.

MCHU-15 Maintain or improve instream flows by actions to:

a. Avoid or minimize increases in water use and
b. Provide incentives to remove or convert direct diversions to off-stream storage and restrict the season of diversion to December through March.

MCHU-17 Continue providing subvention funds to the county for Williamson Act contracts in this HU. Work with landowners and others to maintain or re-establish geographic distribution of coho salmon by continuing to allocate substantial improvements efforts towards identified key refugia streams with substantial coho salmon populations and/or otherwise suitable conditions.

MCHU-18 Coordinate with the North Coast Regional Water Quality Control Board (NCRWQCB) to implement water quality monitoring and streamline permitting of coho habitat restoration projects (RWQCB 401, USACE 404, NOAA Fisheries, and USFWS permitting).

MCHU-19 Encourage state and federal agencies to provide adequate funding to methodically upgrade culverts to pass 100-year flows and the expected debris loads (e.g., LWD that might be mobilized). To provide fish passage, encourage funding authorities to allocate adequate resources to prioritize and upgrade culverts within the range of coho salmon to pass 100-year flows and the expected debris loads (e.g., LWD that might be mobilized).

MCHU-20 Decrease coarse sediment delivery by implementing actions to work with:

a. Landowners, other resource professionals, and agencies to identify areas of increased risk of mass wasting to enable avoidance or mitigation of triggering activities and
b. Transportation system (state, county, and private road and rail) construction and maintenance personnel to identify risks and mitigation measures for mass wasting such as: replacing culverts with bridges, minimizing fill volumes on culverts, and constructing critical dips at culverts.

Albion River Hydrologic Sub Area

ARHSA-1 Place in-stream structures to improve gravel retention and habitat complexity. This is a high priority HSA.

ARHSA-2 Provide technical assistance and incentives to landowners in developing and implementing sediment reduction plans to meet requirements of the Clean Water Act TMDL. Make watersheds with an implementation schedule the highest priority.

ARHSA-3 Compare priorities for treatment of barriers through multi-agency collaborative efforts, such as the Fish Passage Forum.

ARHSA-4 Supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD and shade through:
a. LWD placement;
b. Management to promote conifer recruitment;
c. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
d. Incentives to landowners, such as technical support.

ARHSA-6 After genetic analysis, consider Albion River coho for use as broodstock for reestablishing coho salmon populations in other Mendocino coastal streams.

ARHSA-11 The Recovery Team encourages agencies and landowners to limit the use of non-surfaced roads in the winter or improve road conditions to reduce adverse impacts to coho streams.

ARHSA-12 Conduct comprehensive sub basin erosion control “storm proofing” combined with installation of LWD into streams with significant populations of spawning and rearing coho salmon.

ARHSA-13 Modify stream barriers to allow fish passage while maintaining LWD.

Big River Hydrologic Sub Area

BRHSA-1 To minimize and reduce the effects of water diversions, take actions to improve State Water Resources Control Board (SWRCB) coordination with other agencies to address season of diversion, off-stream reservoirs, bypass flows protective of

coho salmon and other anadromous salmonids and natural hydrograph, and avoidance of adverse impacts caused by water diversion, including funding of assessment and GIS mapping of water diversions and determination and monitoring of Fish and Game Code Section 1600 Program compliance related to water diversions.

BRHSA-2 Target Big River for enhancement of in-stream habitat by installation of LWD.

Garcia River Hydrologic Sub Area

GarRHSA-1 Acknowledge that a comprehensive approach to watershed planning is best.

GarRHSA-2 Reestablish connectivity of North Fork Garcia to the mainstem.

GarRHSA-7 Consider a pilot project of placing salmon carcasses in the form of disease free, Bio Blocks™ in the South Fork Garcia to provide a nutrient source for young salmonids in the place of currently scarce, native spawning salmon. Ideally this would have a monitoring element.

GarRHSA-8 Study the Garcia River estuary using the Garcia River Estuary Enhancement Feasibility Study as well as new information to consider restoring estuary functions that would benefit coho salmon.

GarRHSA-12 Work with landowners to plant riparian zones of Blue Waterhole, Inman Creek, and Pardaloe Creek with the goal of reducing instream temperatures and inputs into the Garcia mainstem, and long-term conifer LWD contribution.

GarRHSA-13 The Recovery Team encourages agencies and landowners to limit the use of non-surfaced roads in the winter or improve road conditions to reduce adverse impacts to coho streams.

GarRHSA-16 Excavate a geomorphically designed channel in lower North Fork Garcia, which currently goes subsurface in the summer months, stranding thousands of salmonids. Young salmonids should be rescued until the restoration project is undertaken.

GarRHSA-17 Work with landowners to plant conifers/redwoods in the lower mainstem Garcia from Eureka Hill Road bridge to Windy Hollow Road with the goal of reducing stream temperature, providing bank stability and long-term LWD. Note the lower mainstem is currently seeing a reemergence of steelhead spawning and rearing life history. Reductions of mainstem temperature to suitable coho range would be a very favorable development.

GarRHSA-18 Consider projects to open logjam migration barriers while maintaining LWD in the North Fork, South Fork and Fleming Creek.

GarRHSA-19 Complete the remaining 25% of erosion control sites, identified in the South Fork Garcia by the Trout Unlimited North Coast Coho Project.

GarRHSA-20 Consider stocking coho in the South Fork Garcia after habitat shows suitability. Note: a small number of coho were found in the South Fork in 2002 for the first time since 1996. In ongoing monitoring shows there is a zero return year, planting should occur in order to establish that year class and not on top of wild population.

Navarro River Hydrologic Sub Area

NavHSA-3 Fund a study of nutrient enrichment of streams. One component could be placing salmon carcasses in the form of disease free, Bio Blocks™ in the Little North Fork Navarro to provide a nutrient source for young salmonids in the place of currently scarce, native spawning salmon.

NavHSA-4 Supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD and shade through:

a. LWD placement;
b. Management to promote conifer recruitment;
c. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
d. Incentives to landowners, such as technical support.

NavHSA-5 Support acquisition by the Coastal Conservancy of the Stornetta Ranch.

NavHSA-7 Comprehensive, sub basin wide, erosion control and LWD installation is being implemented by the Mendocino Redwood Company in partnership with the Department of Fish and Game through TU's North Coast Coho Project in the Little North Fork. This approach of "storm proofing" key sub basins needs to be fully implemented in the key sub basins of : Flynn, Dutch Henry, John Smith, Minnie, Horse Camp and German Creeks. These tributaries have been identified as high priority in the Navarro River Restoration Plan.

NavHSA-11 The Recovery Team encourages agencies and landowners to limit the use of non-surfaced roads in the winter or improve road conditions to reduce adverse impacts to coho streams.

NavHSA-12 Work with landowners as necessary to carry out riparian and upslope planting projects to: reduce stream temperatures, provide long term large woody debris, bank and upslope stability.

NavHSA-14 Illegal "mining" of LWD continues to occur in the lower Navarro mainstem. Enforcement is needed.

Noyo River Hydrologic Sub Area

NRHSA-2 Investigate the role of the Pudding Creek Dam impoundment in coho migration and freshwater survival rate; repair dam as appropriate.

NRHSA-3 The Noyo River should be a high priority for monitoring activites.

NRHSA-4 Request that Mendocino County develop a plan related to water quality from sediment reduction measures on Sherwood Road and implement the measures.

NRHSA-5 Support funding to address barriers to passage on the California Western Railway right-of-way.

NRHSA-6 Evaluate the biological justification for the egg-taking station on the South Fork Noyo River.

Gualala River Hydrologic Sub Area

GualHSA-2 Complete comprehensive assessment/implementation of erosion control measures in entire North Fork basin.

GualHSA-3 Enforce existing, SWRCB/CDFG, bypass flow, permit conditions of North Gualala Water Company diversion on North Fork Gualala. The North Fork Gualala provides an important source of coldwater input to lower mainstem and estuary (Higgins, Keegan Estuary Study).

GualHSA-8 Utilize the Gualala River Steelhead Rescue Rearing Project to save coho found in dewatering reaches such as McGann's Gulch. Project may have additional uses for future reintroduction of coho into suitable Gualala tributaries.

GualHSA-11 Enforce all pertinent codes relating to summer dams and diversions to provide adequate year round flows and fish passage. Baseline flow (hydrograph) studies are needed.

Ten Mile Hydrologic Sub Area

TMHSA-1 Complete implementation of erosion control sites identified in Hawthorne Campbell, DFG, and TU North Coast Coho Project on North Fork Ten Mile. Encourage similar projects in other coho sub basins.

TMHSA-3 The Recovery Team encourages agencies and landowners to limit the use of non-surfaced roads in the winter to improve road conditions to reduce adverse impacts to coho streams.

Non Consensus Recommendations

MCHU-2 Encourage County to adopt additional county ordinances regulating development. Votes: Yes=13; No=6; Abstain=0. No votes from: Dwight, Giacomini, Kull, Lancaster, Poole, Rentz.

Alternate MCHU-2 offered by Dwight, Giacomini,Parker, and Rentz: Encourage local jurisdictions (counties) to update general plans to include measures to protect coho salmon.

Explanation of no vote offered by Lancaster, "Needs more definition of which ordinances or types of effects that are being targeted with the recommendation. Obviously the counties will decide what are appropriate standards."

MCHU-4 County to adopt a grading ordinance. Votes: Yes=16; No=2; Abstain=1. No votes cast by: Dwight, Giacomini. Abstain vote from Rentz.

MCHU-21 Decrease fine sediment loads by actions to:

a. Abandon riparian road systems and/or upgrade roads and skid trails that deliver sediment to adjacent water courses;
b. Limit winter use of unsurfaced roads and recreational trails by unauthorized and impactive uses;
c. Minimize density of water course crossing of roads and trails;
d. Encourage out-sloping roads with rolling dips as the standard, wherever feasible, for all roads, and especially unsurfaced roads;
e. Work with landowners to identify and modify practices such as road maintenance that generate fine sediment;
f. Avoid creating new upslope sediment sources (e.g., road surface erosion); and
g. Avoid or minimize land ownership fragmentation and conversion to more intensive uses. Votes: Yes=14; No=4; Abstain=0. No votes from: Dwight, Giacomini, Lancaster, and Rentz.

Alternate MCHU-21 offered by Dwight, Giacomini,Parker and Rentz: Work with landowerns and other entities to decrease fine sediment loads by actions to:

a. Develop and utilize workshops and materials to educate landowners on proper road construction and maintenance;
b. Abandon riparian road systems and/or upgrade roads and skid trails that devlier sediment to adjacent water courses;
c. *Limit winter use of unsurfaced roads and recreational trails by unauthorized and impactive uses;*
d. *Minimize density of water course* crossing of roads and trails; and
e. *Encourage out-sloping roads with rolling dips as the standard, wherever feasible, for all roads, and especially unsurfaced roads.*

Albion River HSA

ARHSA-8 Provide technical assistance and incentives to Albion River landowners in developing and implementing sediment reduction plans to meet the requirements of the Clean Water Act TMDL. For example, financial incentives to implement plans ahead of the required timelines would be of great benefit. Staff (NRCS, Water Quality, UC AG Extension) dedicated to developing comprehensive "Ranch Plans" for smaller landowners are needed. Votes: Yes=15; No=2; Abstain=2. No votes from Dwight and Rentz. Abstain votes from Giacomini and Parker.

ARHSA-10 Encourage coordination of large wood placement in streams as part of logging operations and road upgrades to maximize size, quality, and efficiency of effort. Votes: Yes= 18, No=0; Abstain=1 Abstain vote from Kautsky.

Garcia River HSA

GarRHSA-5 Provide technical assistance and incentives to Garcia River landowners in developing and implementing sediment reduction plans to meet the requirements of the Clean Water Act TMDL. For example, financial incentives to implement plans ahead of the required timelines would be of great benefit. Staff, (NRCS, Water Quality, UC AG Extension) dedicated to developing comprehensive "Ranch Plans" for smaller landowners are needed. Votes: Yes=16; No=1; Abstain=2. No vote from Rentz. Abstain votes from Dwight and Giacomini.

GarRHSA-6: The comprehensive approach of sub basin erosion reduction with a simultaneous instream LWD placement with on site heavy equipment as was practiced by Mendocino Redwood Company, Trout Unlimited and Pacific Watershed Associates in the South Fork Garcia should serve as a model for other sub basin restoration efforts in the Garcia (and other coastal) River(s). Votes: Yes=18; No=1; Abstain= 0. No vote cast by Kautsky.

Alternate language offered by Dwight, Giacomini, Lancaster, Parker and Rentz: Utilize as a model for erosion reduction and LWD placement, the comprehensive approach practiced in the South Fork of the Garcia.

GarRHSA-9: Encourage coordination of large wood placement in streams as part of logging operations and road upgrades to maximize size, quality, and efficiency of effort. Votes: Yes=18; No=0; Abstain=1 Abstain vote from Kautsky.

GarRHSA-11 Recognize that these tributaries provide cold water input to the Garcia mainstem: Hathaway, North Fork, Rolling Brook, Mill Creek (lower Garcia River), South Fork, Signal, Mill Creek (upper Garcia River). Votes: Yes=18; No=0; Abstain=1. Abstain vote from Kautsky.

Navarro River HSA

NavHSA-8 Provide technical assistance and incentives to Navarro River landowners in developing and implementing sediment reduction plans to meet the requirements of the Clean Water Act TMDL. For example, financial incentives to implement plans ahead of the required timelines would be of great benefit. Staff, (NRCS, Water Quality, UC AG Extension) dedicated to developing comprehensive "Ranch Plans" for smaller landowners are needed. Votes: Yes=16; No=1; Abstain=2. No vote from Rentz. Abstain votes from Dwight and Giacomini.

NavHSA-11 Encourage coordination of large wood placement in streams as part of logging operations and road upgrades to maximize size, quality, and efficiency of effort. Votes: Yes=18; No=0; Abstain=1. Abstain vote from Kautsky.

Ten Mile HSA

TMHSA-5 Provide technical assistance and incentives to Ten Mile River landowners in developing and implementing sediment reduction plans to meet the requirements of the Clean Water Act TMDL For example, financial incentives to implement plans ahead of required timelines would be of great benefit. Staff, (NRCS, Water Quality, UC AG Extension) dedicated to developing comprehensive "Ranch Plans" for smaller landowners are needed. Votes: Yes=17; No=1; Abstain=1. No vote from Rentz. Abstain vote from Giacomini.

TMHSA-6 Encourage coordination of large wood placement in streams as part of logging operations and road upgrades to maximize size, quality, and efficiency of effort. Votes: Yes=18; No=0; Abstain=1./

Gualala HSA

GualHSA-5 Encourage coordination of large wood placement in streams as part of logging and road upgrades to maximize size, quality, and efficiency of effort. Votes: Yes=18; No=0; Abstain=1. Abstain vote from Kautsky.

Redwood Creek Hydrological Unit

Consensus Recommendations

RCHU-1 DFG should work with Redwood National and State Parks, private landowners, and interested parties to improve fish habitat conditions of the estuary while protecting Highway 101 and the Town of Orrick. These plans should aim toward restoring the historic form and function of the estuary/lagoon and slough channels, riparian forests, and adjacent wetlands. This includes providing for:

a. Unconfined channels;

b. Restoration of riparian vegetation, tree cover, wetlands, and off-channel and rearing habitat;
c. Increased sediment transport, pool depth, and LWD;
d. Work to restore natural drainage patterns from adjacent wetlands; and
e. Improved conditions of slough and tributaries to the estuary (Strawberry, Dorrance and Sand Cache Creeks).

RCHU-2 DFG should work with USACE, Redwood National and State Parks, and Humboldt County Planning Department to modify levee maintenance manuals to be consistent with habitat requirements of coho salmon.

RCHU-3 Develop a plan to supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD at appropriate sites across the Redwood Creek basin through:
a. LWD placement;
b. Management to promote conifer recruitment;
c. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
d. Incentives to landowners, such as funding and technical support.

Rogue River/Winchuck River Hydrological Units

Consensus Recommendations

Winchuck River HU

WRHU-1 Develop a short-term plan to increase LWD until natural recruitment can be restored.

WRHU-2 Develop a long-term plan to restore a mature coniferous riparian zone to South Fork Winchuck River.

WRHU-3 Support the assessment, prioritization, and treatment of sources of sediment.

Rogue River HU/Illinois River HA

IRHA-1 Develop a long-term plan to promote retention of LWD.

IRHA-2 Support continued control of sediment.

IRHA-3 Monitor impacts of suction dredge activities.

IRHA-4 Develop a cooperative management strategy with Oregon Department of Fish and Wildlife to improve downstream habitat conditions.

Russian River Hydrological Unit

Consensus Recommendations

RRHU-4 Assess, prioritize, and develop plans to treat barriers to passage.

RRHU-6 Assess riparian canopy and impacts of exotic vegetation (especially *Arundo donax)*, prioritize, and plan riparian habitat reclamation and enhancement programs.

RRHU-7 Implement Sotoyome Resource Conservation District's Fish Friendly Farming Program within Sonoma and Mendocino Counties.

RRHU-8 Implement Coho Captive Broodstock Program:

a. Continue genetic analysis of source stocks for coho broodstock. Recent genetic data produced by the Bodega Marine laboratory (BML) and the NMFS laboratory at Santa Cruz identifies that source populations in the Russian River and Marin County are genetically distinct. Further analysis of other broodstock year classes needs to be completed by NMFS to weigh the risks of inbreeding and outbreeding depression in the captive broodstock program. A review of stocking history may help determine how locally adapted stocks can be utilized to enhance variability and reduce risk of extirpation. This review should be completed before mating protocols are finalized and implemented (CDFG has completed this review in the Russian, and the review for Bodega-Marin Coastal HU is underway);
b. Stock first priority barren streams. First priority streams are streams CDFG has identified with good habitat condition resulting from complete restoration or unimpaired functions and include Felta and Mill Creeks (tributary to Dry Creek west of Healdsburg), Freezeout, Willow and Sheephouse Creeks (near Duncan Mills), and Ward Creek (tributary to Austin Creek). Identify additional streams that may be suitable for stocking as restoration occurs;
c. Develop and implement a monitoring and evaluation program to adaptively manage the coho broodstock program. Coordinate and implement a monitoring and evaluation program that would meet high and medium priority monitoring objectives as outlined in the coho HGMP;
d. Develop, implement, and evaluate experimental release protocols for the captive broodstock program;
e. Review and revise long-term hatchery program goals based on results of the monitoring and evaluation program implemented in the experimental captive broodstock program; and
f. Develop and implement a long-term monitoring program for coho abundance trends in suitable index streams that have recent (within 8 years) coho presence or that will be supplemented with the captive broodstock program

(CDFG has contracted with Humboldt State University to develop these protocols in coordination with NMFS).

RRHU-9 Review and develop preferred protocols for Pierce' Disease control that would maintain a native riparian corridor and develop an outreach program.

RRHU-10 Through the RRHU, advise Sonoma County to consider recommendations to offset impacts from county policies and operations, as developed by the FishNet program in their report, "Effects of County Land Use Policies and Management Practices on Anadromous Salmonids and Their Habitat (Harris, et al, 2001). Advise Mendocino County to consider recommendations to offset impacts from county policies and operations, as developed by the Five County effort.

RRHU-12 Restore fish passage at county structures on all coho streams, as identified in the Russian River Fish Passage Assessment report (Taylor, March, 2003). Expand inventories as needed to use a comprehensive watershed approach. Integrate fish passage projects at county facilities with fish passage improvements involving other landowners, through targeted coho watersheds.

RRHU-13 Sonoma County Public Works and Parks Departments should adopt and implement the best management practices developed in the FishNet 4C manual: Guidelines for Protecting Aquatic Habitat and Salmon Fisheries for County Road Operations and Maintenance (Draft December 2002) after review and approval by state regulatory agencies is completed. Mendocino County Public Works should adopt the Five County Roads manual after review and approval by state regulatory agencies is completed.

RRHU-15 Sonoma and Mendocino County planning and public works departments should promote alternatives to conventional bank stabilization for public and private projects, including bioengineering techniques.

RRHU-16 Sonoma and Mendocino County and neighboring cities should review and revise as needed development set-backs, for adequacy in protecting critical coho streams. Promote streamside conservation protections including conservation easements, setbacks and riparian buffers.

RRHU-17 Sonoma and Mendocino County Public Works, Transportation Department, and Parks and Open Space Districts should inventory, evaluate and fix problem roads which systematically contribute sediment into critical coho streams.

RRHU-18 Support efforts and develop county programs to protect and increase in-stream flows for anadromous fish. Sonoma and Mendocino counties should have policies to minimize impervious surfaces and promote surface water retention. The counties should participate in regional water management planning through the General Plan process and in other venues as appropriate.

Russian River Mainstem

RRMS-2 Investigate the opportunity to operate the estuary as a natural system, allowing periods of closure to benefit salmonid rearing, and appropriate timing of opening to benefit salmonid migration/emigration.

RRMS-3 Explore adjusting the operation of Mirabel Dam within confines of existing water rights and legal uses to improve passage of downstream migrants.

RRMS-4 Evaluate the feasibility of bypassing large dams.

RRMS-5 Update temperature analyses below Coyote Dam and Warm Springs Dam and review dam management.

RRMS-6 In upper mainstem, prioritize and plan habitat restoration programs and projects.

Guerneville Hydrologic Sub Area

GHSA-2 Assess, prioritize, and develop plans to treat sources of excess sediment in areas not covered by GHSA-1.

GHSA-3 Supplement first priority barren streams with the coho broodstock program. Within the Guerneville HAS, these streams include: Willow, Sheephouse, Freezeout, Dutchbill, and Green Valley Creeks.

GHSA-4 Acquire from willing sellers fee title and conservation easements in key coho salmon habitat.

GHSA-7 Assess, prioritize, and develop plans to treat barriers to migration and improve fish passage. Fish passage assessments have been conducted and recommendations should be implemented for barrier modifications.

Austin Creek Hydrological Sub Area

ACHSA-2 Assess, prioritize, and develop plans to treat sources of excess sediment in areas not covered by ACHSA-1.

ACHSA-3 Supplement first priority barren streams with the coho broodstock program, such as Ward Creek. Identify additional streams that may be suitable for stocking as restoration occurs.

ACHSA-5 Assess, prioritize, and develop plans to treat barriers to migration and improve fish passage. Fish passage assessments have been conducted and recommendations should be implemented for barrier modifications.

Warm Springs Hydrological Sub Area

WSCHSA-1 Develop plans to improve riparian vegetation in Dry Creek and its tributaries. Develop and implement riparian improvements through land-use planning, use of conversation easements, and implementation of Sotoyome Resource Conservation District's Fish Friendly Farming Program.

WSCHSA-3 Supplement first priority barren streams with the coho broodstock program, such as Mill and Felta Creeks. Identify additional streams that may be suitable for stocking as restoration occurs.

WSCHSA-4 Review and develop preferred protocols for Pierce's Disease Control that would maintain a native riparian corridor and develop an outreach program.

WSCHSA-5 Assess, prioritize, and develop plans to treat barriers to migration and improve fish passage.

WSCHSA-6 Assess, prioritize, and develop plans to treat sources of excess sediment.

WSCHSA-7 Increase habitat structure and complexity in Dry Creek to enhance habitat diversity, and provide depositional areas for spawning gravels for coho salmon (i.e., place large woody debris or large boulder structures).

Mark West Creek Hydrological Sub Area

MWCHSA-1 Reduce habitat fragmentation and implement riparian improvements through land-use planning and use of conservation easements.

MWCHSA-2 Develop and implement plans to improve in-stream habitat conditions.

MWCHSA-3 Assess, prioritize, and develop plans to treat barriers to migration and improve fish passage. Fish passage assessments have been conducted and recommendations should be implemented for barrier modifications.

MWCHSA-4 Assess, prioritize, and develop plans to treat sources of excess sediment.

Santa Rosa Creek Hydrological Sub Area

SRCHSA-3 Assess, prioritize, and develop plans to treat sources of excess sediment.

SRCHSA-5 Assess, prioritize, and develop plans to treat barriers to passage. Pristine habitat occurs in the upper basin and is under State Parks ownership. Fish passage assessments have been conducted and recommendations should be implemented for road culverts and other barrier modifications in Santa Rosa Creek. Channel enhancement projects are being implemented in lower Santa Rosa Creek. A fish ladder project is being implemented on Matanzas Creek.

Forsythe Creek Hydrological Sub Area

FCHSA-1 Improve migration and summer/overwintering habitat through riparian restoration and erosion control. Coho salmon may utilize tributaries in this watershed. Good habitat conditions exist in Jack Smith and Eldrige Creeks. Habitat and passage improvements in other portions of the watershed would potentially benefit coho, such as bioengineering projects and grazing management practices that protect riparian corridors.

FCHSA-2 Assess, prioritize, and develop plans to treat sources of excess sediment.

FCHSA-3 Assess, prioritize, and develop plans to treat barriers to migration and improve fish passage. Passage improvements are being developed and implemented, for example, passage past Mumford Dam and passage improvements on Mariposa Creek.

Geyserville Hydrological Sub Area

GYHSA-2 Assess, prioritize, and develop plans to treat barriers to migration and improve fish passage.

GYHSA-3 Assess, prioritize, and develop plans to treat sources of excess sediment.

Non Consensus Recommendations

RRHU-11 Sonoma and Mendocino Counties should develop grading and erosion control standards supported by a grading ordinance, to minimize sediment impacts to anadromous coho streams. Votes: Yes=16; No=2; Abstain=1. No votes from Giacomini, Rentz. Abstain vote from Kautsky.

Russian River Mainstem HSA

RRMS-1 Manage summer flows in the mainstem of the Russian River, to the benefit of rearing salmonids and the estuary, while ensuring that all existing legal water uses and rights are accounted for. Votes: Yes=11; No=2; Abstain=5. No votes from Helliwell, Weseloh. Abstain votes from Bell, Gail, Kautsky, Friedman-Johnson/Millet, and Lancaster.

Salmon River Hydrologic Area

Consensus Recommendations

SRHA-2 Establish a multi-agency task force to assume implementation of barrier removal. This task force would include, at a minimum, representatives from Salmon River Restoration Council, USFS, NOAA Fisheries, USFWS, and DFG.

SRHA-3 Support efforts to educate landowners through the Salmon River Restoration Council to reduce the impacts of private roads on coho salmon.

SRHA-4 Support the on-going efforts of Salmon River Restoration Council to deal with invasive exotics using Integrated Pest Management.

SRHA-5 Encourage the use of Fire Safe Council's recommendations promoting the reduction of fuel near residences to reduce human-caused fires spreading into the forest.

SRHA-6 Investigate how USFS is dealing with riparian and aquatic conservation in the Northwest Forest Plan regarding fire suppression and fuels management and encourage the USFS to consider coho in their overall fuel management plan.

SRHA-7 Recognize the Salmon River Restoration Council's value for cost-effective education and restoration.

SRHA-8 Encourage USFS to continue to work closely with the Salmon River Restoration Council.

SRHA-9 Support and supplement on-going efforts to provide short-term and long-term benefits to coho salmon by restoring LWD in Salmon River through:

a. LWD placement;
b. Management to promote conifer recruitment;
c. Improvement of existing riparian zones through plantings, release of conifers, and control of alders, blackberries, and other competitors; and
d. Incentives to landowners, such as funding and technical support.

SRHA-10 Develop a plan to remediate mine tailings.

Non Consensus Recommendations

SRHA-1 With the goal of reducing sediment and providing fish passage at all life history stages where roads affect coho streams:

a. Request that USFS implement recommendations for roads already assessed and accelerate the Northwest Forest Plan road assessment schedule;
b. Encourage Siskiyou County to complete road sediment inventory assessment and implement treatment of county roads; and
c. Encourage Siskiyou County to implement recommendations of the completed assessment of barriers. Votes: Yes=13; No=0; Abstain=1 Abstain vote from Lancaster.

San Francisco Bay Hydrological Unit

Consensus Recommendations

SFBHU-1 Habitat suitability evaluations in the San Francisco Bay Area should include coho salmon.

SFBHU-2 Where appropriate, apply statewide recommendations to suitable streams in the San Francisco Bay.

San Rafael Hydrological Sub Area

SRHSA-1 Work to restore coho habitat, especially in Arroyo Corte Madera del Presidio and Corte Madera Creek.

Non Consensus Recommendations

There are no non consensus recommendations in this HU.

San Mateo Hydrological Unit

Consensus Recommendations

SMHU-1 Continue to operate MBSTP King Fisher Flat Hatchery under the guidance of NOAA Fisheries and DFG as a conservation hatchery to reintroduce missing or supplement very weak brood years.

SMHU-2 To minimize and reduce the effects of water diversions on coho salmon, take actions to improve State Water Resources Control Board (SWRCB) coordination with other agencies to address season of diversion, off-stream reservoirs, bypass flows protective of coho salmon, and the natural hydrograph, and avoidance of adverse impacts caused by water diversion, including funding of assessment and GIS mapping of water diversions and determination and monitoring of Fish and Game Code Section 1600 Program compliance related to water diversions.

SMHU-3 Implement FishNet 4C priority actions that protect coho salmon:

a. Continue to protect riparian zones within the Coastal Zone on coho streams according to Local Coastal Plan and Timber Harvest Plan prescriptions. Evaluate the need to apply coastal zone protections to non-coastal zone areas on coho streams;

b. Develop, adopt and implement written standards for routine operations and maintenance. Train staff in best management practices;
c. Conduct fish passage assessments and restore fish passage to coho salmon.
d. Conduct road assessments and address issues of sedimentation from county public works and parks roads and trails.
e. Promote alternatives to conventional bank stabilization for public and private projects.
f. Establish adequate spoils storage sites throughout the counties so that material from landslides and road maintenance can be stored safely away from anadromous streams. Coordinate these efforts with Caltrans.
g. Work to increase county enforcement of permit conditions and erosion control plans on development.

SMHU-5 Support timberlands and agriculture and work to protect these rural landscapes from conversion to urbanization.

<u>San Gregorio Creek Hydrologic Sub Area</u>

SGPCHSA-1 Minimize take attributable to diversion of stream flow is of three primary types: (1) reduced rearing habitat for juvenile coho salmon, (2) reduced flows necessary for smolt emigration, and (3) reduced flows necessary for adult immigration. This recommendation would develop and support alternatives to diversion of stream flow, where the alternatives may include operation of off-stream reservoirs, development of infrastructure necessary for conjunctive use of stream flow, and use of desalinated ocean water.

SGPCHSA-3 Conduct a comprehensive assessment of watershed processes (e.g., hydrology, geology, fluvial-geomorphology, water quality, vegetation), instream habitat, and factors limiting coho salmon production. Use the assessment results to develop a plan for restoration of coho salmon passage, in-stream habitat, and upslope erosion control, for implementation by cooperating landowners/managers.

SGPCHSA-4 Implement best management practices designed to reduce erosion of soil and consequential sedimentation of instream habitat attributable to roads (for example, practices described in the California Salmonid Stream Habitat Restoration Manual).

SGPCHSA-5 Implement best management practices designed to reduce bank erosion, water temperature, and removal of LWD by improving the form and function of the riparian forest. These BMPs include livestock exclusion fencing, reclamation and reconstruction of floodplain, and active revegetation.

SGPCHSA-6 Modify infrastructure (e.g., culverts, bridges, out-buildings) to reduce the threat of damage attributable to substantial accumulation of LWD.

Ano Nuevo (Gazos Creek) Hydrologic Sub Area

GazCHSA-1 Implement the projects recommended as high priority to coho salmon in the Gazos Creek watershed restoration plan.

Non Consensus Recommendations

There are no non consensus recommendations for this hydrological unit.

Shasta and Scott Valleys Hydrologic Areas – Non Agricultural

Consensus Recommendations

SSHA-2 Support actions to reduce anthropogenic-caused sediment input from upslope sources identified through public and private inventories. Prioritize remediation activities, which would include slope stabilization minimizing sediment production, and eliminating fish passage barriers.

SSHA-3 Encourage Federal, state, and county agencies and private landowners to reduce impacts to coho salmon habitat from public and private road systems. Continue road assessment activities to identify and prioritize sources and risks of road-related sediment. Support activities to:

a. Reduce road densities where necessary and appropriate;
b. Decommission or upgrade prioritized roads and skid trails;
c. Upgrade roads and road maintenance practices to eliminate or reduce the potential for concentrating run-off to streams during rainfall events;
d. Decrease potential for stream flow to become diverted at road crossings during high flow events resulting in flow along the road that returns to the channel at undesirable locations;
e. Stabilize slopes to minimize or prevent erosion and to minimize future risk of eroded material entering streams;
f. Minimize alteration of natural hillslope drainage patterns;
g. Encourage funding authorities to allocate adequate budgets to federal, state, and local agencies for road maintenance activities, capital project activities, and dedicated funding to pay for fish passage projects; and
h. Support efforts to educate landowners through the Scott Valley Watershed Council and the Shasta River CRMP to reduce the impacts of private roads on coho salmon.

SSHA-4a Establish adequate funding from state and federal agencies to prioritize and upgrade culverts to pass 100-year flows and the expected debris loads (e.g., LWD that might be mobilized). To provide fish passage, encourage funding authorities to allocate adequate resources to prioritize and upgrade culverts within the range of coho salmon to pass 100-year flows and the expected debris loads (e.g., LWD that might be mobilized).

SSHA-4b Identify barriers to passage and prioritize them for removal, through collaborative efforts with other agencies' needs.

SSHA-5 DFG and DOC to work with Siskiyou County to design and implement a reclamation plan. Develop a plan to remediate effects of historical mining (i.e., tailings near Callahan) to enhance production and survival of coho salmon. Identify locations, costs, and restoration potential of intensively mined areas.

SSHA-6 Improve water quality by reducing or minimizing both domestic and municipal sources of nutrient input (i.e., sewage treatment plant discharge, septic system discharge, and storm drain runoff). Support efforts by cities and rural communities to complete system upgrades to achieve Clean Water Act compliance.

SSHA-7 Minimize impacts of cattle grazing on watercourses as necessary and appropriate (i.e., providing off-site watering, preventing over grazing, etc.)

SSHA-8 Support cooperative state and local efforts to redirect Big Mill Creek into its historic channel under State Route 3 thereby restoring adult and juvenile coho access to approximately 1.25 miles of quality spawning and rearing habitat.

SSHA-9 Assess the potential benefits and technical feasibility of exercising the USFS right to stream flow in the Scott River for fish and wildlife within the Klamath National Forest under the Scott River Decree. This should be dealt with during the verification described in SSRT water management recommendations.

SSHA-10 DFG to ask the Bureau of Reclamation to study the potential benefits of adjusting Iron Gate flows to better meet the needs of adult and juvenile life stages to enhance Scott/Shasta coho production, consistent with the flow needs of the Klamath and Trinity systems.

Non Consensus Recommendations

SSHA-1 Reduce the risk of catastrophic fires through fuels management (especially in the Scott) around residential structures and homes. Implement Fire Safe Council recommendations promoting the reduction of fuel near residences to reduce human-caused fires spreading into the forest and causing harm to coho habitat. Votes: Yes=17; No=1; Abstain=1). The no vote from Rentz. The abstain vote from Giacomini.

Smith River Hydrological Unit

Consensus Recommendations

SRHU-2 Assess, prioritize and treat barriers to passage and other impediments to use (including water diversion), especially those blocking access to and use of smaller tributaries, including Clarks, Morrison, Peacock, Sultan, and Little Mill Creeks.

SHRU-3 Develop and implement a plan to restore the effectiveness and use of off-channel areas, sloughs, and wetlands. Yontocket, Tillas, and Tryon sloughs should be given immediate attention with this program. Since a portion of Yontocket Slough is State property, the restoration of connectivity and functionality of this slough should be given priority.

SRHU-4 Investigate the feasibility of restoring channelized reaches of streams to natural meander belts (e.g., Lower Rowdy Creek and Dominie Creek) which would allow recruitment of stored spawning gravel, reestablish scour pools, recruit woody debris from banks, and ultimately restore fluvial processes that maintain coho habitat.

SRHU-5 Develop and implement measures to install LWD and provide for future LWD recruitment.

SRHU-6 Assess the impacts of steelhead outplanting by the Rowdy Creek Hatchery.

SRHU-8 Support the use of the existing watershed coordinator to aid in implementing recommendations.

Mill Creek Hydrologic Sub Area

MCHSA-1 Assess, prioritize, and treat sediment sources (mostly legacy roads).

MCHSA-2 Assess current levels of LWD, determine amount necessary for improved flushing, pooling and habitat conditions for coho, facilitate immediate placement and develop a plan for long term recruitment.

MCHSA-3 Develop and implement a plan for riparian planting.

Wilson Creek Hydrologic Sub Area

WCHSA-1 Work with landowners to determine the amount of LWD necessary for improved flushing, pooling and habitat conditions for coho, facilitate immediate placement and develop a plan for long term recruitment.

WCHSA-2 Develop a plan to increase connectivity of riparian habitat through fencing and planting.

WCHSA-3 Support the assessment, prioritization, and treatment of sources of sediment.

Smith River Plain Hydrologic Sub Area

SRPHSA-1 Support the assessment, prioritization, and treatment of barriers to passage.

SRPHSA-3 Support an assessment of the entire Elk Creek watershed.

SRPHSA-4 Support prioritization and implementation of the watershed assessment.

Non Consensus Recommendations

SRHU-1 Develop and implement a program to control exotic vegetation, particularly canary grass, which impedes access to and use of tributaries by coho salmon. Votes: Yes=18; No=0; Abstain=1. The abstain vote was from Kautsky.

SRHU-7 Adequately control legacy sources of sediment and provide for minimization of new sediment input. Votes: Yes=15; No=0; Abstain=4. The abstain votes were from Dwight, Giacomini, Lancaster, and Rentz.

Alternate language offered by Dwight, Giacomini, Parker, and Rentz: The Coho Recovery Team supports local government and private landowner actions to identify and treat sediment input to key coho streams.

Explanation of no vote offered by Lancaster, "Does not specify who will accomplish the work, time lines or provide economic criteria (cost to benefit ratio) to prioritize work. The General Accounting Office reports it will cost $400 million to treat Forest Service and BLM roads in Oregon and Washington. Our work indicates it would cost $70-100 million to treat county roads in Del Norte, Humboldt, Mendocino, Siskiyou, and Trinity counties. Costs per cubic yard of sediment treated can range up to several $100s per yard."

Trinidad Plain Hydrological Unit

Consensus Recommendations

TPHU-1 Support the assessment, prioritization, and treatment of sediment sources, particularly roads that have not been assessed and acknowledge progress that has been made in addressing sediment sources.

TPHU-2 Work with the County and landowners to maintain flood plain capacity and prevent future encroachment on the flood plain.

Big Lagoon Hydrologic Sub Area

BLHSA-1 Continue to work with private landowners to develop riparian buffers with an adequate conifer component and canopy closure to reduce temperatures, increase LWD, and provide sediment filtration.

Little River Hydrologic Sub Area

LRHSA-1 Develop a plan to improve the functioning of the lower river estuary. Re-establish conifers and a functional flood plan and riparian zone on the lower river channel. Re-establish more complex in-stream habitat.

LRHSA-2 Urge landowners to minimize the impacts of agricultural activities on the estuary.

LRHSA-4 Work with the county, local government, and landowners to maintain current flood plan capacity and prevent future encroachment on the flood plain.

Non Consensus Recommendation

LRHSA-3 Request that the Coastal Commission require the landowner who constructed the cranberry bogs without permits to fund restoration of the area by a qualified restoration expert. Votes: Yes=17; No=4; Abstain=0. No votes cast by Dwight, Giacomini, Lancaster, Rentz.

Alternate language offered by Dwight, Giacomini, Parker and Rentz: Request that DFG and other appropriate agencies enforce any violation of law that occurred from construction of cranberry bogs in Little River.

Explanation of no vote offered by Lancaster: "Do not support calling out a single enforcement case when there are many that are as significant which are not identified in the recommendations. This is an arbitrary application that does not contribute to building an effective plan."

Trinity River Hydrological Unit

TRHU-3 Determine genetic make-up of current hatchery and natural stock. Develop and implement a hatchery genetic management (HGMP) for coho salmon to utilize the most fit and appropriate stock for use in the Trinity River.

TRHU-4 Add a conservation element to the hatchery goals.

TRHU-8 Support development of a county grading ordinance based on exemption, certification (BMPs), and permitting criteria.

TRHU-9 Urge Trinity County to implement the Five Counties *Water Quality and Stream Habitat Protection Manual for County Road Maintenance in Northwestern California Watersheds.*

TRHU-10 Support continued state and federal funding for the implementation of sediment reduction programs for private lands and the implementation of DIRT prioritized sediment source sites treatment funding on county roads.

TRHU-11 Urge Trinity County to establish incentives and standards for private riparian and wetlands area protection based on flexible subdivision design, road curb and gutter requirements, minimum lot size and density, clustering and other techniques.

TRHU-12 Urge Trinity County to establish riparian setbacks for grading activities on private lands, based on Fish and Game 1994 recommendations to District I counties.

TRHU-13 Evaluate the impacts of non-native fish species on coho salmon and develop management guidelines to reduce impacts.

Douglas City Hydrologic Sub Area

DCHSA-1 Investigate all water diversions on Reading Creek and Browns Creek. Restore fish passage and encourage installation of screens to DFG-NOAA standards. Provide incentives to landowners when necessary to reach this goal.

DCHSA-2 Increase riparian function in lower Reading Creek and Browns Creek with conservation easements or landowner incentives that reduce agricultural and grazing impacts.

Grouse Creek Hydrologic Sub Area

GCHSA-1 Support continued implementation of habitat restoration, including measures to stabilize upslope areas, enhance riparian zones, storm proof, stabilize, and/or decommission roads, and replace culverts.

Hyampom Hydrologic Sub Area

HHSA-1 Request that the USFS develop a management plan for Big Slide to reduce human contributions to mobilization of sediments, including evaluating relocation of the county road that crosses Big Slide.

HHSA-2 Request that the USFS reduce fuel loading in stands that could be susceptible to catastrophic fire. Where appropriate, this management should include actions to accelerate the growth of conifers for LWD recruitment, develop mature shade canopy in the riparian zone, and to provide for other multiple use goals.

Hayfork Valley Hydrologic Sub Area

HayHSA-1 Encourage agricultural/residential water conservation programs through incentive programs.

HayHSA-2 Recommend that Trinity County amend its Critical Water Resources Overlay to address new riparian water rights development resulting from parcel subdivision. The amendment should include expanding the overlay zoning to additional watersheds where summer surface flows are limiting factors for residents and for coho fisheries habitat.

HawHSA-3 Support continued implementation of riparian improvements through restoration activities, land use planning, and conservation easements.

Non Consensus Recommendations

TRHU-1 Implement the Trinity River Record of Decision (ROD) which would provide:

a. Variable annual instream flows for the Trinity River from te Grinity River Dam (TRD) based on forecasted hydrology for the Trinity River Basin as of April 1st of each year, ranging from 369,000 acre-feet (af) in critically dry years to 815,000 af in extremely wet years.
b. Physical channel rehabilitation, including the removal of riparian berms and the establishment of side-channel habitat;
c. Sediment management, including the supplementation of spawning gravels below the TRD and reduction in fine sediments which degrade fish habitats;
d. Watershed restoration efforts, addressing negative impacts which have resulted from land use practices in the Basin; and
e. Infrastructure improvements or modifications, including rebuilding or fortifying bridges and addressing other structures affected by the peak instream flows provided by the ROD. Votes: Yes=16; No=0; Abstain=3. Abstain votes from Dwight, Giacomini, and Rentz.

SUBMITTAL

The RT respectfully submits this partial set of recommendations for consideration by the Director of the Department of Fish and Game. We look forward to continuing our work to its conclusion this year.

August 1, 2003.

_____	_____
Craig Bell, The Sierra Club	Joe Blum, National Oceanic and Atmospheric Administration, Protected Resources Division

Walt Duffy, U.S. Geological Survey

—California Cooperative Fisheries Unit, Humboldt State University, science representative

Lawrence Dwight, California Cattlemen's Association

Dan Gale, Senior Fisheries Biologist, Yurok Tribe

Pam Giacomini, Director of Natural Resources and Commodities, California Farm Bureau

Steve Herrera, Chief, Environmental Review Unit, California State Water Resources Board

Wendy Millet,The Nature Conservancy

George Kautsky, Fisheries Biologist, Hoopa Tribe

Kallie Kull, Director, FishNet 4C (counties of Santa Cruz, Monterey, San Mateo, Marin, Sonoma and Mendocino-Russian River basin)

Mark Lancaster, Five Counties Salmonid Conservation Plan Advisory Committee Counties of Del Norte, Siskiyou, Trinity, Humboldt, and Mendocino)

Dean Lucke, Assistant Deputy d Director, Forest Practices, California Department of Forestry and Fire Protection

Deborah McKee, Senior Environmental Planner, California Department of Transportation

Larry Moss, Smith River Alliance

_____

Gail Newton, Project Director, California Department of Fish and Game, Native Anadromous Fish and Watershed Branch

_____

Peter Parker, non-industrial timber Owner

_____

Randy Poole, General Manager and Engineer, Sonoma County Water Agency

_____

Mark Rentz, Vice President, Chief Environmental and Legal Affairs, California Forestry Association

_____

Vivian Helliwell,
Pacific Coast Federation of Fishermen's Associations

_____

Stephanie Tom Coupe, Office of General Counsel, CDFG

_____

Tom Weseloh, California Trout

Appendix A

FINAL GROUND RULES
COHO RECOVERY TEAM
AMENDED BY UNANIMOUS AGREEMENT 1/30/03

Goal and Objectives

The Goal of the Coho Recovery Team (RT) is to advise the California Department of Fish and Game (Department) and, if possible, reach consensus on recommendations for a Recovery strategy employing reasonable conditions such that the species would no longer warrant listing.

The objectives are to share information on the nature and extent of concerns both about the Coho and other uses of proximate natural resources, to develop options for dealing with these concerns, to evaluate these options, and to come to agreement, if possible, on a set of recommendations for the recovery of Coho Salmon.

Participation

1. Active participation at meetings of the RT shall be limited to its Members, except insofar as a Member requests comment on a point or topic from another party and the RT agrees to the request. Presentation of agenda items by other than Members of the RT should be requested at the previous meeting of the RT.

2. Member may name an Alternate to participate in meetings which the Members is unable to attend and if an Alternate is named, accepts the responsibility of assuring continuity in participation on the Recovery Team.

3. Department staff who have prepared materials for use by the RT may be present at a meeting to answer questions of RT Members.
4. The duration of the RT's work is December, 2002 through July, 2003, unless the time is extended by request of the Director of the Department.

Meetings

1. Meetings will be managed by a neutral facilitator. The facilitator will preserve and maintain the schedule and ground rules and will guide meeting discussion to ensure Members who wish to be heard are allowed to be heard. The facilitator will neither agree nor disagree with any Member's position.

2. Draft agendas will be prepared by the facilitator consistent with the schedule of meeting topics provided by the Department and in consultation with Members as appropriate.

3. Members recognize the importance of attending meetings and agree to make every effort to attend each meeting. Members agree that discussion will be limited to agenda items, except insofar as time after the agenda has been covered allows for discussion on another topic.

4. Summary minutes of meetings will be kept and circulated for review by all Members of the RT. Minutes will reflect issues and concerns as well as project status.

Communication

1. The Department agrees to provide a secure website to facilitate communication among the Members.

2. Each Member agrees that contacts with the media concerning the work of the RT while the RT is functioning shall be limited to the Deputy Director of the Department, Dirk Brazil.

Decisionmaking

1. Members agree that it may be desirable to reach preliminary agreement on a topic or geographic unit. They further agree that such preliminary agreements are not binding and are subject to review and consideration after all topics and geographic units have been considered at which time preliminary agreements will be reviewed and affirmed or modified. Preliminary agreements will not be included in meeting minutes.

2. Members agree that if agreement is reached, it will take the form of a written statement of recommendations to the Director of the Department. The document will be drafted by project staff and circulated for review and approval of the RT.

3. Members agree that to the extent that the parties do not reach consensus on all points, the RT may transmit a report that indicates the issues on which agreement was reached and those on which agreement was not reached.

Comment: The RT does not transmit a report. Perhaps we should say that the Department's plan may track both the majority and minority opinions.

4. In the event full consensus is not achieved, Members may agree to make presentations orally or in writing to the Director that would clarify their views on the issues.

Safeguards for the Participants

1. Each Member recognizes this is a collaborative problem-solving process and agrees to participate in good faith.

2. Each Member agrees to respect the right of each other Member to be heard.

3. Each Member agrees not to characterize a position taken by any other Member.

4. Each Member may withdraw at any time without prejudice. Any withdrawing Member remains bound by the ground rules.

5. Each Member agrees not to withhold relevant information from other Members.

6. Each Member agrees not to divulge information shared by others in confidence.

7. Each Member agrees that preliminary agreement on any aspect of the RT's work is subject to review and approval at the end of the process.

Appendix B

PARTIAL LIST OF VOLUNTARY AND COOPERATING GROUPS AND ACTIVITIES FOCUSED ON RECOVERY OF COHO SALMON BY WATERSHED (HU LEVEL)

Multiple Watersheds

Since 2001 The California Water Resources Agency has funded regional coordinators to provide technical assistance to local watershed groups. This program is managed by For the Sake of the Salmon.

Five Counties Salmonid Conservation Program is the first multiple country, watershed based conservation strategy formed in California to address the biological, watershed, political, social and economic effects of declining salmonid populations. Members are Del Norte, Humboldt, Mendocino, Siskiyou and Trinity counties.

California Cattlemen's Association has sponsored workshops with the assistance of U.C. cooperative Extension and Natural Resources Conservation Service on water quality since 1996. The recently developed Watershed Resource Guide encourages and assists the formation of watershed groups.

U.C. Davis provides a Watershed Advisor to collaborate with landowners, watershed planning groups and resource agencies to develop and implement scientifically sound watershed management plans and policies.

The Rangeland Water Quality short course taught by U.C. Davis has been attended by ranchers representing over 1 million acres and has resulted in ranch plans prepared by half of the ranchers who attended. Implementation of improved practices have been undertaken by over half the ranchers who attended.

The "California Watershed Assessment Manual," produced by U.C. Davis provides a tool box of approaches and protocols to analyze natural resource issues in creeks and rivers.

The California Dairy Quality Assurance Program is a voluntary, industry driven program offering continuing education and certification, including in Environmental Stewardship Farm Management.

The Fish Friendly Farming Program developed by the Sotoyome Resource Conservation District is a voluntary certification program for grape growers who implement land management practices that restore and sustain fish habitat on their property.

The California Association of Resource Conservation Districts sponsors "Wild on Watersheds", a voluntary educational program to encourage hands-on participation in watershed management.

Fishnet 4C—The Fishery Network of the Central California Coastal Counties of Mendocino (Russian River Basin), Sonoma, Marin, San Mateo, Santa Cruz and Monterey)—is a proactive multi-county group focused on county based programs to protect and restore coho salmon, Chinook salmon and steelhead trout, in the Central California Coastal ESU. Programs include restoration projects (e.g., roads, barrier removals, bioengineering) and policies (e.g., grading ordinances, streamside conservation setbacks, general plan updates) to protect coho salmon.

Bodega/Marin HU

The Tomales Bay Watershed Council has prepared the Preliminary Tomales Bay Watershed Stewardship Plan. The Council works with multi-stakeholders to complete a comprehensive watershed assessment plan and implement priority restoration projects and outreach and education programs. This includes Lagunitas Creek, with a strong focus on coho restoration in that drainage.

Since 1993, the STRAW project has partnered students with ranchers to restore creek habitat.

SPAWN is a local grassroots organization with a focus on salmonid protection and watershed restoration. Outreach and education programs include salmon spawning guided walks and juvenile rescue efforts. Other efforts include creek restoration projects, roads and culvert/barrier identification, and water quality monitoring.

Wilderness Way is an educational program in the San Geronimo Valley with a strong focus on salmon restoration and protection.

Marin Municipal Water District (MMWD) Lagunitas TAC was formed as part of the mitigation required for water projects in the Lagunitas basin. The Lagunitas TAC advises MMWD on projects to improve coho salmon habitat, with a focus on increasing woody debris in the creek, identifying and fixing sediment problems from erosion, and monitoring salmon populations and habitat conditions.

Environmental Action Committee works with the Tomales Bay Watershed Council on issues related to planning and restoration as well as advocacy.

The Marin Conservation League is focused on public education, outreach, and advocacy.

Trout Unlimited is active in salmon restoration and advocacy work in the Lagunitas drainage (in particular in Devil's Gulch) and at the Pt. Reyes National Seashore, in coordination with the seashore's salmon recovery efforts.

U.S. Park Service, Pt. Reyes National Seashore, focuses on salmon restoration projects (erosion control riparian protections, and removal of barriers) in Olema, Pine Gulch and Lagunitas Creeks.

U.S. Park Service, Golden Gate National Seashore, works on creek restoration projects and assessments that will directly benefit coho salmon.

U.C. Cooperative Extension works with ranchers in west Marin to improve salmon habitat through erosion control and riparian fencing projects.

The Marin Resource Conservation District (RCD) works with local residents in west Marin (primarily ranchers and dairy farmers) to improve watershed conditions that directly help to restore salmon habitat. Projects include erosion control, riparian fencing and watershed assessments and monitoring.

STRAW provides watershed education and outreach programs as well as riparian restoration projects. In 2001, this program won the Governor's Award for Environmental and Economic Leadership.

MALT (Marin Agricultural Land Trust) is nationally known for its ability to help protect ranchland in west Marin, which helps prevent conversion to other land uses such as development and sub-divisions, thereby protecting land important to coho salmon.

Cape Mendocino HU

Mattole River HSA: Mattole Salmon Group: this citizen-run group was formed in 1980, has conducted spawning surveys since that time and has documented down-migration through migrant traping. They raised coho salmon via hatch boxes placed in streams. This group is part of the DFG Cooperative Trapping and Rearing Program. Produced with DFG a five-year plan that provides guidance to the cooperative rearing and rescue projects.

The Mattole Restoration Council has performed habitat assessments from 1988 through 1994 and published "Good Roads, Clear Creeks."

Ten Mile River HSA: Trout Unlimited is working with forestland owner Hawthorn Campbell on Ten Mile river to address controllable sediment sources.

Eel River HU

The Eel River Watershed Improvement Group (ERWIG) was formed in 1997 to develop cooperative relationships and implement fishery improvement projects with landowners in the Eel River system. It is focused on the lower Eel, Van Duzen River, South Fork Eel and associated tributaries.

The Mainstem Eel River Group (MERG) works to educate and assist community members on salmonid restoration issues through the development and implementation of restoration projects. MERG works on the central mainstem from Dobbyns to Kekawakee creeks.

The Humboldt Resource Conservation District directs assistance to landowners and landowner based watershed groups leading to resource conservation and fish habitat improvements. Projects include the Lower Eel Basin Watershed Organizational Support Project to provide direct assistance to landowner based groups in the Middle and Lower mainstem Eel River and delta, the Van Duzen River, and South Fork Eel River Watersheds. Projects implemented include management of dairy waste, stream bank erosion and riparian restoration.

South Fork HSA: The Eel River Salmon Restoration Project has worked over 20 years on restoration projects, education of students and adults and has operated a fish hatchery. They operate mainly on the South Fork Eel River.

Mendocino Redwood Company is removing fish passage barriers on their Hollow Creek property.

The AmeriCorps Watershed Stewards Project (WSP) has formed a collaborative with timber companies, commercial and sport fishing industry representatives, teachers, community members, non-profit organizations, and public agencies to conserve, restore, and sustain natural anadromous habitats for future generations.

The Humboldt and Mendocino Counties RCDs are cooperating in assisting local South Fork Eel landowners to develop restoration plans.

Ferndale HSA: The Salt River Public Involvement Project provides landowners a forum to coordinate restoration efforts in the Salt River basin.

Howe Creek Ranch has given a conservation easement to protect from subdivision and conserve riparian habitat.

Yager Creek HSA: Projects by Pacific Lumber Company include pool development, cover, and bank stabilization.

Yager/Van Duzen Environmental Stewards (YES) is a group of landowners and resource managers working in Yager Creek, North Fork Yager Creek, Middle Fork Yager Creek, South Fork Yager Creek and the middle section of the Van Duzen River and associated tributaries. An inventory of 420 miles of roads will be completed in the spring of 2003 on YES member lands. All members must have a Water Quality Management Plan that has Best Management Practices designed to protect water quality.

The Fortuna Creeks project is a comprehensive watershed monitoring and restoration project for high school students, who conduct water quality testing, aquatic

macroinvertebrate sampling and habitat typing for the lower Eel and Van Duzen Rivers. The also do bi-yearly creek clean-ups, increase public awareness about creek care and plant trees to bring back natural creek habitat and participate in spawner surveys to help monitor the local salmon population.

Hydesville HSA: Humbodlt County Resource Conservation District, the Natural Resource Conservation District and ERWIG have been working with landowners with Van Duzen River frontage to treat stream bank erosion problems using bioengineering techniques and place large wood and boulders to provide fish habitat.

Gravel operators at the mouth of the Van Duzen River cooperated in an experimental trenching project to provide a defined low flow channel for fall salmon to use in migration in 2002.

Landowners on Wolverton Gulch and Cummings Creek have participated in restoration projects on their properties.

Weott HSA: Landowners have cooperated in upslope and riparian inventories on approximately 70% of this watershed. Many roads have been storm proofed, stream banks stabilized and trees planted in the riparian areas throughout the watershed.

Benbow HSA: Eel River Salmon Restoration has operated a small hatchery on Redwood Creek, conducts numerous restoration activities including watershed planning documentation, in-stream structure design and construction, slide stabilization, sediment basin construction and maintenance, tree planting, fish barrier modifications, sediment source surveys, and road system drainage upgrades, monitored fish populations using downstream migrant traps and spawner surveys, and been involved with education programs that involve local schools and interested landowners. This group has recently completed a watershed plan for Miller and is working on another for Leggett Creek. Eel River Salmon Restoration has built in-stream structures in Leggett Creek, using logs donated by a local timber landowner.

Seely Creek landowners have worked to implement a watershed plan funded by DFG. Roads have been storm proofed, thousands of trees planted, and a culvert that was a barrier to salmonids replaced.

Trout Unlimited and Mendocino Redwood Company have performed a road erosion survey in the Hollow Tree Creek Watershed. MRC is providing a cost share.

Laytonville HSA: Hawthorne Timber Company is engaged in a long-term effort to storm-proof and upgrade upslope roads, as well as abandoning down slope roads. Diversions and historic crossings are systematically being repaired, and rocked fords are being installed at many stream crossings.

Outlet Creek HSA: Landowners have worked over the past fifteen years to maintain a defined channel through Little Lake Valley to facilitate upstream migration of adult and downstream migration of juvenile salmonids.

A Willits-landowners group is participating in an assessment of Davis Creek.

Eureka Plain HU

Humboldt Bay Watershed Advisory Committee (HBWAC) has worked since 1997 to plan and guide cooperative salmon conservation efforts between local stakeholders while also considering regional ecological and socio-economic needs. They have recently prepared a conservation plan for salmon and steelhead trout.

Salmon Forever has monitored turbidity and discharges in Freshwater Creek.

Humboldt County has provisions to protect Stream Management Areas and evaluate their effectiveness.

The Humboldt Bay Watershed Enhancement Program is a cooperative effort coordinated by the Redwood Community Action Agency to improve water quality and anadromous fisheries habitat within the Humboldt Bay watershed. Members include landowners, timber companies, watershed restoration groups, contractors, a land trust, educators and government agencies.

The Watershed Alliance Council's Watershed Improvement Network is a collaborative alliance of watershed restorationists, planners, and managers through Humboldt County. The long-term goal of the project is to improve the health and productivity of Humboldt County's natural resources and economy.

Klamath River HU

The Yurok Tribal Fisheries Program has developed a comprehensive watershed restoration plant for the lower Klamath River and is currently implementing prioritized activities throughout the sub-basin in cooperation with Simpson Resource Company and the Del Norte Center of the California Conservation Corps.

Farmers and ranchers in the Klamath Project worked with The Nature Conservancy and federal agencies to shift nearly 25,000 acres of farmland in the upper Klamath basin to wetlands and other environmental projects. An Integrated Pest Management Plan was developed for lease land growers that reduces by 90% the pest and weed control measures available in California.

Klamath Water Users Association has been working on a dry-year environmental water bank to be implemented in 2003. During 2002, these water users reduced irrigation during the last six weeks of the irrigation season to save water for the river and wetlands which enabled the Bureau of Reclamation to release a "pulse flow" out of Iron Gate Dam

to aid fish passage in the lower portion of the river. The 2002 federal Farm Bill provides funds for water-conserving purposes. The first round of funding included 175 growers in California, the majority of whom propose on-farm irrigation efficiency through piping, upgrading sprinkler systems, and laser-leveling land.

During drought years 1992 and 1994 Tulelake Irrigation District voluntarily shut off diversions throughout the district seven weeks early to provide more water for salmon, suckers, and the wildlife refuges. In 2002, the District lined 2 ½ miles of open canal to reduce water loss.

The Klamath Irrigation District is studying lining water canals with bentonite to reduce water loss.

Mad River HU

The Coastal Stream Restoration Group has worked in the North Fork of the Mad River to improve LWD structure and grow conifers for future recruitment.

Blue Lake and Butler Valley HSA: Redwood Coast Action Agency (RCAA) has completed several projects with in stream LWD placement, rock structure placement, riparian planting with conifers and channel re-alignment in Maple Creek and Canon Creeks.

The Lindsay Creek Working Group works to protect and restore watershed processes in this sub watershed.

Butler Valley HA: The Redwood Coast Action Agency has completed projects to place LWD, rock structure riparian planting with conifers and channel re-alignment in Canon and Maple Creeks.

Mendocino Coast HU

Trout Unlimited is working with Mendocino Redwood Company in the assessment and implementation phase of comprehensively addressing controllable sediment sources in Coho sub basins on the Garcia, Navarro, Albion, Big, Noyo, and South Fork Eel tributary Hollowtree Creek. Sites are mapped and given a low, medium, or high priority. Field survey teams develop site-specific road treatment prescriptions that include a cost benefit ratio for sediment savings. This program also includes classroom and field training of landowners, road crews, equipment operators and contract loggers. Landowner funds match funds from DFG, National Fish and Wildlife Foundation, Mendocino County Resource Conservation District and Americorp's Waterhed Stewards Project.

Mendocino Redwood Company collects and shares data on stream temperature. In a cooperative project with Trout Unlimited, Mendocino Redwood Company will replace a major migration barrier with a bridge that will open up the North Fork Schooner Gulch to coho spawning and rearing.

Albion River HSA: In the Albion River watershed, Hawthorn Campbell completed 2 miles of improved road surfacing, 3 miles of reshaping, abandoned 2 crossing and repaired 1 diversion.

Navarro River HSA: The Mendocino County Water Agency prepared a watershed plan for the Navarro River with the participation of the Anderson Valley Land Trust and the Navarro Watershed Community Advisory Group. Mendocino Redwood Company, DFG, and TU are storm proofing the Little North Fork.

Mendocino Redwood Company is developing a road management plan for Masonite Road to reduce sediment to the North Fork of the Navarro and Daugherty Creek (a tributary to the Big River).

The Mendocino RCD completed the initial Navarro Implementation Plan and is beginning the Robinson Creek and Lower Indian Creek Restoration projects, the Arundo Eradication project, and is completing the Mill Creek Monitoring project and sediment reduction projects on Holmes Ranch Road, Hungry Hollow, and Bates Road. This RCD is also establishing the Mendocino Natives Nursery to establish a self-sustaining local business that provides native plants for riparian improvement.

Ten Mile HSA: Forest landowners completed 12.6 miles of improved road surfacing, 21 miles of road re-shaping, and 21 miles of road abandonment, including 11 crossings and 4 landings, and repaired 2 diversions in the Ten Mile watershed between 1998-2002. For 2003 they will conduct an additional 300 miles of road assessment, 3 miles of upgrades, install 8 large crossings, repair 96 diversions and abandon 14 miles of roads with 42 crossings and 15 landings.

The Ten Mile Forest Landowners Association assists smaller timber landowners to protect, manage, improve, and protect surface and groundwater quality and enhance aquatic habitat for native aquatic species.

Noyo River HSA: The Noyo Watershed Alliance is a stakeholder group that will address water quality issues in the Noyo and coordinate restoration activities.

Hawthorn Campbell improved 2.6 miles of road surfacing, 6.3 miles of road reshaping and abandoned 2.8 miles of roads between 1998 and 2002 in the Noyo River watershed. In 2003, the company plants to complete an additional 6.2 miles of upgrades in the Little North Fork of the Noyo.

Big River HSA: In the Big River watershed, Hawthorn Campbell completed 8.7 miles of improved road surfacing, 6.8 miles of reshaping, installed 6 large crossings, repaired 2 diversions and abandoned 2.2 miles of road including 13 crossings between 1998 and 2002.

Garcia River HSA: The Mendocino County Resource Conservation District had a sediment delivery reduction project in the Bluewaterhole Creek area.

The Mendocino County Resource Conservation District has prepared a Garcia River watershed enhancement plan. Trout Unlimited and Mendocino Redwood Company are placing LWD in the Garcia.

Landowners in the Garcia Watershed Council have participated in voluntary stream temperature monitoring and will soon publish a report.

Gualala HSA: Landowners from Mendocino and Sonoma Counties are members of the Gualala Watershed Council, which is supported by the Sonoma/Sotoyome RCD staff.

Redwood Creek HU

Redwood Creek Landowners Association has inventoried their properties with follow up upgrading and decommissioning of roads throughout the watershed to reduce future sediment impacts.

Simpson Resource Company (SRCO) implemented a large woody debris placement project in the upper watershed near Minon Creek during 2002. SRCO replaced culverts in the Little River HSA.

Russian River HU

Fishnet 4C Program report, "Effects of County Land Use Policies and Management Practices on Anadromous Salmonids and Their Habitats (Harris et. al., 2001)

The Mendocino County RCD is completing the Feliz Creek Riparian Restoration and Fish Habitat Improvement project, the McNab Ranch Road Assessment and is beginning the Forseyth Creek Assessment project.

Guerneville HSA: There are community watershed groups in the Fife Creek, Jenner Creek, and Willow Creek watersheds.

Fish Net 4C has published "Guidelines for Protecting Aquiatic Habitat and Salmon Fisheries for County Operations and Maintenance" (Draft, Dec. 2002)

The Russian River Watershed Council is a multi-stakeholder watershed group working to restore the Russian River watershed through public outreach and education, watershed assessments and planning, restoration projects and public policy advocacy.

Circuit Riders, Inc. is a non-profit organization that works with Sonoma County youth, with a focus on exotic plant species eradication and riparian restoration proljects in the Russian River basin.

Sotoyome Resource Conservation District is active in watershed restoration throughout the Russian River basin and other Sonoma County watersheds (i.e., Gualala River). The District employs watershed coordinators to conduct outreach and education programs and conduct outreach and education for better watershed stewardship.

The Sonoma Ecology Center is a non-profit organization that works on coho salmon projects in partnership with private landowners and Sonoma County. The Center also serves as a n advocacy voice for improved policies related to watershed protection and restoration.

The Occidental Arts and Ecology Center provides a forum for watershed education through their annual Basins of Relations Program. Members of OAEC are also active in west Sonoma County watershed groups for smaller tributaries with a focus on coho salmon restoration and protection.

West Sonoma County Watershed Groups include friends groups and active citizen groups working in partnership with local government and landowners to restore and protect many smaller tributaries in West Sonoma County.

Bodega Marine Laboratory is a field lab of UC Davis that has contributed to the understanding of genetics for coho salmon in the Central California Coastal ESU.

U.C. Extension Service is active with landowners in the Russian River basin, with a focus on erosion control and best management practices for agriculture.

The Institute for Sustainable Fisheries (ISF) works in the Russian River Basin to facilitate the establishment of a genetically informed conservation hatchery for coho salmon at Warm Springs Dam.

Salmon River HU

The Salmon River Restoration Council has been studying data gaps for the past 1-2 years.

Water users in the basin have prepared a 40-page summary of conservation and restoration efforts in the basin.

San Francisco Bay HU

Mill Valley Streamkeepers provides outreach and education to local residents to conduct assessments and monitor the conditions in Arroyo de Corte Madera Creek and implement restoration projects.

Friends of Corte Madera Creek provides outreach and education to local residents to conduct assessments and monitor the conditions in Corte Madera Creek and implement restoration projects.

San Mateo Coast

The Coastal Watershed Council is active in the Gazos Creek drainage on watershed assessments and identifying priority restoration projects.

The San Mateo Resource Conservation District (RCD) is active in implementing programs and projects associated with salmon restoration on the San Mateo Coast, including watershed assessments, erosion control, manure management and barrier removal projects.

The California Farm Bureau is active with landowners on the San Mateo coast to improve farming practices to protect streams and water quality. This includes working to implement the Monterey Bay National Marine Sanctuary Clean Water Program's Agricultural Land Management Plan. The Farm Bureau is also active with the RCD and the County in helping to restore in-stream flows for salmon by relocating on-channel storage ponds to off-channel.

The Monterey Bay National Marine Sanctuary Clean Water Program has an Agricultural Land Management Plan. The Sanctuary is also active with the RCD and the County in helping to restore in-stream flows for salmon by relocating on-channel storage ponds to off-channel. The Sanctuary has comprehensive programs for protecting water quality in Monterey Bay through erosion control on agricultural lands.

The Pescadero Conservation Alliance is a local grassroots organization working with residents and agriculture on environmental issues in Pescadero Creek, including creek clean-ups and exotic weed control.

The Peninsula Open Space District (POST) is working on the San Mateo coast to preserve important lands with ecological value, including lands in coho watersheds.

The Committee for Green Foothills works on environmental review of planning documents related to development on the San Mateo coast. On-going monitoring of development projects focus on protecting endangered species, coastal access, coastal streams and water quality.

Santa Cruz-Big Basin HU

The Coastal Watershed Council actively prepares watershed assessments, water quality monitoring, advocacy, and outreach and education.

The Santa Cruz Resource Conservation District (RCD) works with local landowners and residents on watershed assessment and restoration projects. The RCD also partners with local agencies to implement projects on public lands, and provides outreach and education. The District is the founder of the Blue Circle model for community involvement in watershed groups.

The California State Coastal Conservancy is active in the Santa Cruz region in watershed restoration in many salmonid streams. They support watershed assessments, implementation of restoration projects, and join in partnership with the RCD, DFG, local municipalities and local citizen groups to achieve restoration and protection goals.

The Monterey Bay Salmon and Trout Project works to provide a conservation based hatchery for restoration of coho salmon and steelhead trout on the San Mateo and Santa Cruz coast.

Shasta River HU

The Western Shasta Resource Conservation District created a special educational series on "Water Quality and You" for the Cow Creek Watershed residents and landowners.

Smith River HU

The Smith River Advisory Council is a citizen-based effort in existence for many years that has developed the Smith River Action Plan and holds a yearly colloquium to educate the community about the Smith and its fisheries.

Trinidad Plain HU

Little River HSA: Simpson Company has conducted out migrant trapping and developed population estimates on the mainstem of Little River. The company also has a program of road retirement in this HU.

Trinity River HU

Grouse Creek HSA: Sierra Pacific Industries has upgraded 40 sites identified by a US Forest Service inventory of the Grouse Creek Watershed and over 6.5 miles of road to minimize the potential for future sediment input into Grouse Creek or its tributaries. Six sites remain to be rehabilitated.

South Fork HSA: Timber Products Company has completed 2 years of a five-year road maintenance plan addressing road and crossing rehabilitation work on over 18 miles of road within the Upper South Fork Trinity River unit. As of March 2003, TPC is ahead of schedule and has completed almost 12 miles of rehabilitation work.

Water conservation projects are underway in the Indian Creek, Hayfork watershed with cooperation of landowners.

Appendix C

Watershed Prioritization Maps
And Explanations

Watershed Prioritization Methodology

Purpose: This document describes the data, processes, and methods used in getting to the Watershed Prioritization used by the Coho Recovery Team. It also discusses the limitations of the data and methods, and thus, the limitations of the results.

-Map 1: Consistent Presence ("Refugia Watersheds" – W. Duffy)

What: Shows the percentage of streams surveyed, in each HSA (Hydrologic Sub-Area), that have consistent presence of coho salmon over 2 or 3 years.

Data: Coho Presence/Absence tables found in the Coho Recovery Team Watershed Summaries (provided by the regions)

Analysis: Since quite a few of the watersheds had only 2 years of P/A data (2001 and 2002), we had to base our analysis on only those 2 years that we could find consistently across all CALWATER hydrologic sub-area (HSA) watersheds. A handful of watersheds had additional years, and in those cases we also included 2000 data.

First, using the P/A data, we defined 'Consistent Presence' to mean surveyed and found in more than one of the 2 or 3 years of survey results, or surveyed and found in the only year surveyed. Then, by counting the number of streams surveyed per watershed (HSA), we came up with a percentage of consistent presence (Consistent Presence in 2 of 8 streams surveyed in that watershed = 25% Consistent Presence).

We then grouped the results into 6 rankings:

0 = No surveys in this watershed.
1 = Streams surveyed, but no coho found.
2 = Coho found, but no consistent presence.
3 = 0-9% Consistent Presence
4 = 10-49% Consistent Presence
5 = 50-100% Consistent Presence

Shown below are the criteria we used to determine if a stream had 'Consistent Presence':

For streams with 2 years of survey

Consistent Presence?	Year	Year
N		
N	A	
N	A	A
N, but coho found	P	A
Y	P	
Y	P	P

For streams with 3 years of survey

Consistent Presence?	Year	Year	Year
N			
N	A	(A)	(A)
N, but coho found	P	A	
N, but coho found	P	A	A
Y	P	P	A
Y	P		
Y	P	P	
Y	P	P	P

Limitations: This map was produced using presence/absence data, not abundance data. So it doesn't in any way represent the total numbers of fish in any given HSA, just that they were there. Also, since a consistent field data capture technique was used only in recent years, there is only 2-3 years of data to look at, which limits the scope of the results. Finally, this map only shows where streams have been surveyed and coho were found (or not). There are many streams that were not surveyed at all. This creates a bias based on how many streams were surveyed in a given HSA. Some HSAs had only 1 or 2 streams surveyed and could receive a 50% or 100% Consistent Presence with only 1 or 2 streams having coho presence, while other HSAs had 20+ streams surveyed and could have many more streams with coho presence and still not reach the 50% Consistent Presence mark. The streams that were chosen to be surveyed, however, were based on historic data that showed where the coho were most likely to be found, and it's assumed that there are very few additional streams that could have been surveyed where coho would have been found.

-Map 2: Coho Population and Risk ("Risk of Extinction" – W. Duffy)

What: Shows the combination of Coho Population factors and Risk factors by HSA.

Data: This map represents the compilation of several data sources. See below for details on the 6 combined analyses used.

Analysis: The rankings for the 3 coho population factors were first added together, and then the 3 risk factor rankings were added together and divided by 3. This added the risk factors in as equivalent to each individual population factor. Finally, both totals were added and then grouped into quintiles separately for each ESU.

Limitations: This map was produced by combining the rankings of 6 separate analysis (3 for coho population factors, and 3 for risk factors). See below for specific limitations on each of these.

Compiled Analysis: The following 6 items represent individual analyses that all went into the Coho Population and Risk Map. All of these analyses involved assigning a score to each HSA and then grouping the scores into ranks (usually 1-5). Since there are many factors that differ between the 2 ESUs (ecologically significant unit), these range breaks were often created separately for each ESU (3, 4, and 6).

1. Consistent Presence – see previous map

2. Isolation Index

Data: CALWATER2.2 watersheds and 'Consistent Presence' data created from Presence/Absence data from Coho Recovery Team Watershed Summaries.

Analysis: For this analysis we wanted to assess the geographic isolation of every watershed (HSA) that had any level of 'consistent presence' (codes 3, 4, or 5). To accomplish this, we did the following for each watershed that fell into this category:

1. Selected all watersheds within the same Hydrologic Unit (HU) that were at least partially within a 5 mile radius of the boundary of the selected watershed.
2. Sum the area of all of these selected border watersheds.
3. Do a subset sum of the area of all of the selected border watersheds that also had some level of 'consistent presence'.
4. Calculate the percentage of 'consistent presence' area out of the total area. The lower the percentage of nearby 'consistent presence' watersheds, the more isolated the ranking. The rankings were as follows:
   1 = 100-70% (not very isolated)
   3 = 70-45% (somewhat isolated)
   5 = 45-0% (very isolated)

Limitations: This analysis is based on the proximity of HSA watersheds to other HSA watersheds within the larger HU watershed unit. It does not look at direct hydrologic connectivity, but at clusters of HSA that at least do eventually drain from the same point.

3. Run Length

Data: 100K DFG Streams layer from Eric Haney (Region 1)

Analysis: For this analysis we first took the downstream stream length from the output point of each watershed (HSA) to the mouth (ocean or SF Bay). We then added a 'pseudo radius' value calculated for each watershed

based on its area. This addition created a run length that pushed partially into the watershed, and it also gave us run lengths for coastal watersheds that otherwise would have received a zero value. We then grouped the results into rankings based on 5 categories (different ranges for the 2 ESUs):

Ranking	SONCC	CCC
5	0-13 miles	0-4 miles
3	14-40	5-6
1	41-82	7-8
3	83-126	9-11
5	127-200	12-31

High rankings were given to both very short and very long runs, with the assumption that these represented potential unique populations of coho.

Limitations: Since we do not have good point location data for the coho, we cannot calculate exact run-lengths to spawning areas. Instead we are calculating an average value that goes mid-way into the HSA where there are coho.

4. Census Population Density

Data: Year 2000 Census data from DFG library (by Census Tract)

Analysis: For this analysis we used the existing Density Class field (1-10) in the data, and aggregated up from Census Tract to HSA. For each Census Tract (or part of a Census Tract as clipped by the HSA boundary), we multiplied the Density Class by the percentage area of the Tract to the HSA, and then added all the pieces. The results were then grouped into 5 rankings for each ESU.

Limitations: We are inferring a risk to the coho population based on the density of people. While the Census data is fairly accurate, the relationship of human density to coho risk is not necessarily a direct linear one.

5. Points of Water Diversion

Data: State Water Resources Control Board's Water Rights Information System (data from 12/2002).

Analysis: Within the historical range of coho, the points of diversion were summarized by HSA. The totals were then grouped into ranks based on percentiles:

Percentile	Range	Rank
50%	0-19	1
60%	20-41	2
70%	42-64	3

Percentile	Range	Rank
80%	65-186	4
95%	187-1045	5

Limitations: The data used for this analysis was the best available and captures almost all water diversions from streams. However, what it doesn't capture (at this time) is the amount of water pulled out at each diversion. Some diversions may be for a single residence, while another may be for a very large water district transfer or large irrigation project. Ideally, amount of water diverted (instead of number of diversions) would be used.

6. Road Density

Data: 100K Roads data from DFG library (USGS DLG data by county)

Analysis: For this analysis we counted miles of roads per watershed (HSA), and divided by total square miles per watershed to get a miles/sq.mile figure. The results were then grouped into 5 rankings for each ESU.

Limitations: The 100K Roads data used for this analysis is the best available for the whole coho range at this time. However, at the 100K scale of data capture, large numbers of smaller rural roads are left out, thus somewhat diminishing the road density in the rural areas. Ideally, 24K Roads data would be used.

-Map 3: Prioritized Watersheds for Management Actions ("Restoration Potential" – W. Duffy)

What: Shows the combination of Coho Population factors, Risk factors and Watershed Status by HSA.

Data: This map represents the compilation of several data sources. It starts with Map 2: Coho Population and Risk (see above) and adds a combined Watershed Status analysis that was compiled based on the professional opinion of DFG field staff on 3 categories for each HSA: Potential Habitat, Disconnected Habitat, and Watershed Condition.

Analysis: DFG field staff from Region 1 and Region 3 were asked to rank each HSA (1-5) in their region based on the following 3 categories: 1) Potential Habitat, stream gradient and pools, 2) Disconnected Habitat, barriers, and 3) Watershed Condition, overall condition, impairments, disturbances. These ranks were then added together and added to the totals from Map 2: Coho Population and Risk. The totals were then grouped into ranks (1-5) separately for each ESU.

Limitations: The limitations for this map include the limitations from Map 2: Coho Population and Risk. In addition, the 3 ranks collected from DFG field staff are subjective and have inherent problems because of that.

-Map 4: Disconnected Habitat ("Disconnected Habitats" – W. Duffy)

What: Shows the amount and type of stream barriers to coho migration.

Data: This data was compiled based on the professional opinion of DFG field staff.

Analysis: DFG field staff from Region 1 and Region 3 were asked to rank each HSA (1-5) in their region based on Disconnected Habitat. The possible categories are as follows:

N/A = not current or known historic coho habitat
0 = natural, permanent, or year-round barrier to coho migration
1 = an extremely large barrier (i.e. major dam like Iron Gate) or an extremely large number of confirmed barriers
2 = large numbers of confirmed barriers
3 = a moderate number of barriers need to be removed or modified to allow all life stages passage to restorable coho habitat
4 = a few barriers need to be removed or modified to allow all life stages passage to existing coho habitat
5 = none to very few barriers need to be removed or modified to allow all life stages passage to existing coho habitat

Limitations: The data for this map was collected as professional opinion from DFG field staff and is a subjective ranking and it has inherent problems because of that.